

40-B

32932  
war

14  
THE  
JOURNAL-~~L~~ LANCET

Represents the Medical Profession of  
Minnesota, North Dakota, South Dakota, and Montana

The Official Journal of the  
North Dakota and South Dakota State Medical Associations

B  
50

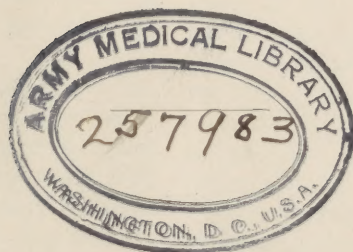
PUBLISHED TWICE A MONTH

A SEMIMONTHLY MEDICAL JOURNAL

W. A. JONES, M. D., Editor

---

VOLUME XLIV



MINNEAPOLIS  
W. L. KLEIN, PUBLISHER

1924





33752

# THE JOURNAL-~~L~~ LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 1

MINNEAPOLIS, JANUARY 1, 1924

Per Copy, 10c  
A Year, \$2.00

## REGIONAL ANESTHESIA IN SURGERY OF THE PROSTATE GLAND AND BLADDER\*

BY WILLIAM R. MEEKER, M.D.

Section on Anesthesia, Mayo Clinic

ROCHESTER, MINNESOTA

With regard to the question of whether any given operation is a suitable one in which to employ local anesthesia, it may be prescribed as a fundamental principle that only such operations should be performed under local anesthesia as can be carried out painlessly to the end. The patient has, in the present status of the science and art of anesthesia, the right to be operated on painlessly, and the risks of general anesthesia which are rarely very great should not be unduly exaggerated. Clinical experience indicates that a general anesthetic may be administered with impunity to the patient who is in good general condition; but in cases in which the usual complications of an enlarged prostate or malignant growths of the bladder are present, the advisability of eliminating the extra burden imposed on the vital organs by a general anesthetic is quite obvious.

Certain factors must be considered in prostatectomy which, as a rule, are not concerned in other surgical procedures. The advanced age of the patient is usually attended by associated conditions that must be kept constantly in mind as influencing the risk in anesthesia. The reserve strength of the vital organs has been diminished so that the older the patient, the less likely he

is to survive the shock of operation and the post-operative complications due to confinement in bed. The aged are more susceptible to complications of the cardiorenal and pulmonary type. Atrophic emphysema and chronic bronchitis are not uncommon, and varying degrees of arteriosclerosis, hypertension, and myocarditis are present.

In most of these cases the effects of chronic obstruction of the urinary tract are present. Blood urea is relatively high, and the renal function relatively low. Urinalysis reveals the presence of albumin, pus, and casts. Chronic nephritis is often present, and pyelonephritis may be superimposed, due to the back pressure of residual urine. In other cases there are attacks of acute urinary retention and, in nearly all, varying amounts of residual urine. In such cases as these it requires no argument to establish the desirability of local anesthesia in order to leave the vital functions of the body as nearly as possible in the same condition as before operation.

Since terminal infiltration was the first method of local anesthesia practiced to any great extent it is not surprising that this method was the first local anesthesia technic to be applied to prostatectomy. As a result of these efforts the method of anesthesia by periprostatic injections through

\*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.



the cavity of the bladder was developed. In this technic the abdominal wall is first infiltrated with novocain-adrenalin solution as for a cystotomy, and the cavity of the bladder exposed. With long needles injections are made through the mucosa of the bladder around the prostate, as much as possible between the true and false sheaths, as it is in this plane that the solution must diffuse around the gland (Fig. 1). The

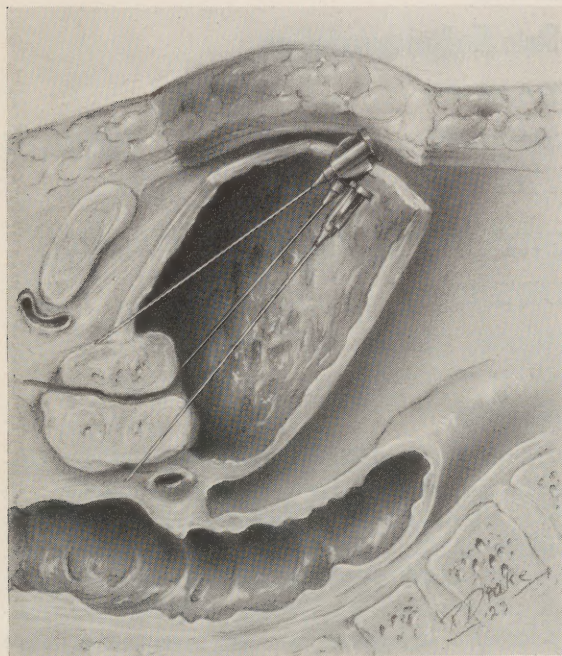


Fig. 1. Local anesthesia by periprostatic infiltration through the bladder.

needle is then passed into the urethral lumen, the lateral walls pierced low in the prostatic portion, and injections made at these points.

Obviously, the success of this method will depend considerably on the gentleness of the operator in enucleation and the ease with which the prostate may be shelled from its capsule. The difficult cases are those in which there is no definite cleavage plane. The pulling and tearing necessary in enucleation of such prostates is transmitted beyond the anesthetized area sufficiently to cause intolerable pain. On the other hand, in the absence of cystitis and prostatitis, and with a very definite cleavage plane, enucleation may be performed in good subjects without prostatic anesthesia.

If it is necessary to explore the vesical cavity, or if there is also a lesion of the bladder, intravesical anesthesia is always desirable and often necessary. In many instances the anesthesia

technic is itself exceedingly painful, and in others, particularly in the second stage prostatectomy, it cannot be accurately performed because of insufficient exposure. Because of this a method of prostatic anesthesia by injections through the perineum was devised.

In periprostatic anesthesia, by injections through the perineum (Fig. 2) the abdominal wall is

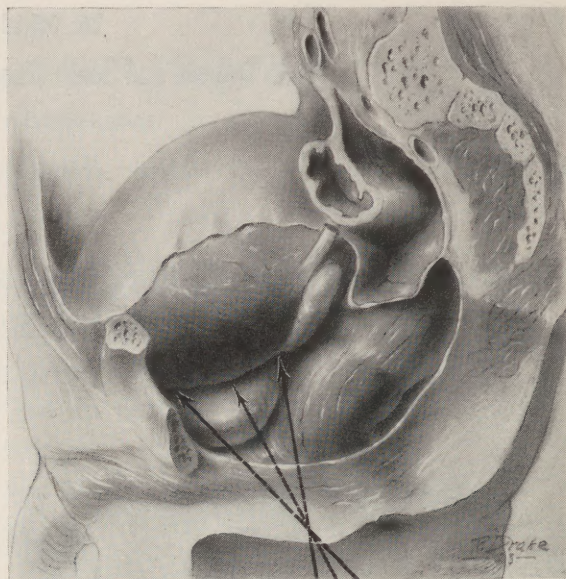


Fig. 2. Local anesthesia by periprostatic infiltration through the perineum (modified from Spalteholz).

infiltrated as usual for cystotomy. The patient is then placed in the lithotomy position. The index finger of the left hand is inserted into the rectum, and palpates the hypertrophied gland. A needle is introduced anterior to the anus and pushed upward between the rectum and the prostate, the anesthetic solution being constantly injected while the needle is guided by a finger in the rectum (Fig. 3). All tissues between the inferior rami of the ossa ischii and the prostate in front, and the rectum and anus behind are infiltrated in this manner by fanwise injections from the central point. About 80 to 100 c.c. of 0.5 per cent solution is distributed around the prostate so that it is enclosed behind and on the two sides by a plane of anesthetic solution.

Block of the pudic nerve has been attempted, besides the perineal infiltration. The point of election along the course of this nerve is on the dorsal surface of the ischial spine, where it lies close to the bone in loose connective tissue. A long needle is introduced a little to the ventral side of the anus and about 2.5 cm. from the median line. Guided by a finger in the rectum,



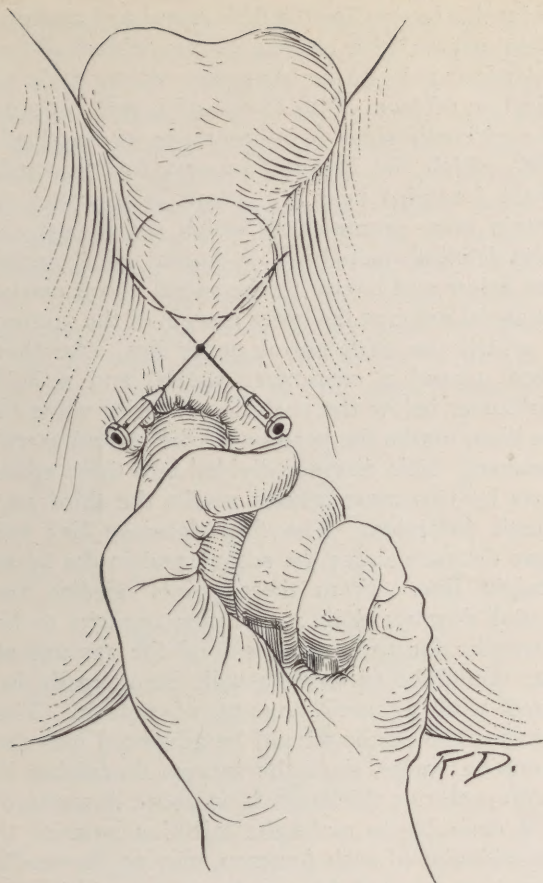


Fig. 3. Infiltration into the perineum for prostatic anesthesia.

the needle is advanced until it strikes the ischial spine. It is then slightly retracted, its point depressed and again pushed onward until it passes to the dorsal surface of the spine at which point 10 to 15 c.c. of 1 per cent solution are injected. Periprostatic fanwise injections as described are also made.

A method of blocking the sacral nerve trunks at their exits from the anterior sacral foramina, termed parasacral anesthesia, has also been employed. With the patient also in the lithotomy position, two points of injection 1.5 to 2 cm. from the median line at the level of the sacro-coccygeal articulation are marked by dermal wheals. A longer needle is then introduced, and the way felt past the sacrum and along the anterior surface of the bone parallel to the median plane to the height of the second sacral foramen. This distance is injected with 20 c.c. of 1 per cent solution. A longer needle is then reinserted at an angle more anteriorly toward the line of the innominate bone, and still parallel to the median plane. After advancing much

deeper than before, it strikes the promontory of the sacrum close to the first sacral foramen where 20 c.c. of solution are injected. The same technic is employed on the opposite side, after which an injection of 5 c.c. is made between coccyx and rectum, 100 c.c. in all being used. Twice this amount of 0.5 per cent solution may also be employed.

Parasacral nerve-block has not been widely employed, partly because of its technical difficulty and consequently undependable results. Incomplete anesthesia occasionally occurs in superficial operations on the perineum and terminal rectum, necessitating additional infiltration of the operative field. No doubt the percentage of failures would be higher in prostatectomy. Most operators employing this method also infiltrate locally so that the efficiency of the parasacral block alone is difficult to estimate.

The passage of needles through the perineum in periprostatic infiltration, pudic nerve block or parasacral nerve block is not without an element of danger. The rectum or seminal vesicles might be punctured, especially when the relations of pelvic viscera to each other have been changed by a marked prostatic hypertrophy and associated changes or by pathologic changes in other pelvic viscera. Infection might be spread by the needle in traversing a septic area, and there is also danger of transmitting infection by introduction of the finger into the rectum even with the most careful observance of aseptic technic.

A better quality of anesthesia without the inconvenience and decreased asepsis of perineal infiltration may be obtained by sacral blocking with periprostatic infiltration through the bladder when necessary. By this method an injection into the epidural space through the sacral hiatus is made. Various formulas have been employed in this injection, from 120 c.c. of 0.5 per cent to 30 c.c. of a 2 per cent solution. In the experience of the Clinic the best results are obtained with from 35 to 40 c.c. of 1.5 per cent or 50 to 60 c.c. of a 1 per cent novocain solution and 10 mm. of adrenalin for each 100 c.c. of solution. This method, even in the hands of the expert, is accompanied by from 10 to 15 per cent failures for operative work, in which case the anesthesia must be supplemented by general narcosis, or periprostatic infiltration.

In general, the methods of anesthesia thus far discussed do not create as favorable operative conditions as general narcosis, nor are these



methods equally applicable to all surgical conditions of the bladder and prostate. Advocates of local anesthesia often insist that an essentially different technic must be employed than when operating under general anesthesia. Blunt dissections, heavy sponging and sudden pulling must, as a rule, be avoided. In prostatectomy, however, pulling, and tearing are necessary, as well as heavy handed sponging in a deep cavity. Traction cannot be avoided even in the most favorable cases, and knife and scissors can only occasionally be substituted for the finger enucleation.

Of the methods of technic thus far described, the sacral is the only one in which the bladder is anesthetized before it is opened, and by this method anesthesia is often insufficient for operative work. Sensation may be dulled to a degree that will permit manipulative work only. If the bladder is irritable it may happen that grasping the edges of the incision, or touching the mucosa with sponges and instruments, or by digital exploration, will cause pain. If the patient is to derive the full benefit of local anesthesia all pain must be eliminated during the course of the operation. An inefficient local anesthesia in which the patient has considerable pain may produce shock considerably greater than that of a general anesthetic.

A still more efficient operative anesthesia of the entire pelvic floor and viscera is produced by sacral nerve block through the posterior sacral foramina called the transsacral method, (Fig. 4). In the Mayo Clinic this method has been modified by the addition of a very low

epidural injection for the fifth sacral and anococcygeal nerves, with transsacral nerve block of the upper four pairs of sacral nerves. A low epidural injection of from 20 to 25 c.c. of 1 per cent procain-adrenalin solution is first made, as described, after which the lateral foramina are injected. These foramina bear a constant relationship to certain bony prominences which are almost always definitely palpable. A dermal wheal placed just below and lateral to the sacral cornu marks the sacral notch at the lower margin of the sacrum in which the fifth sacral nerve lies. Another wheal placed a centimeter medial and a half centimeter below the posterior superior spine of the ilium marks the position of the second sacral foramen. This distance divided into three equal parts by two more wheals marks the third and fourth foramina. The first foramen lies the same distance above the second and in the same straight line. From these points needles are passed downward in a direction thought to be perpendicular to the tangent of the sacrum at that point, the foramen usually being easily located with a small amount of search. The distance the needle should be advanced into the foramina varies, since the sacrum diminishes in anteroposterior thickness from above downward. It is desirable to make the injection anterior to the midpoint of each foramen, moving the needle somewhat to and fro as the injection is completed.

The amount and strength of the solution varies with the size and general resistance of the patient. For greatly debilitated patients and for relatively poor surgical risks 0.5 per cent strength is used. The amount is then gauged more or less on the probable size of the sacrum. From 20 to 40 c.c. of the solution are injected into the sacral canal and the sacral foramina, according to their size and the size of the nerve trunk to be blocked. The greatest amount should thus be injected into the first foramen and the quantity reduced for each successive foramen, that is, 7, 6, 5, 4, and 3 c.c., respectively. From 75 to 140 c.c. of the 0.5 per cent solution have given uniformly complete anesthesia. When 1 per cent strength is employed, as in the average case, 20 to 25 c.c. are injected into the sacral canal, and the posterior foramina are injected in the same ratio as with the 0.5 per cent solution. From 60 to 90 c.c. of a 1 per cent solution have, in all cases, produced complete physiologic block.

#### SUPRAPUBIC FIELD BLOCK

For the suprapubic incision a field block of the abdominal wall is employed so that greater re-

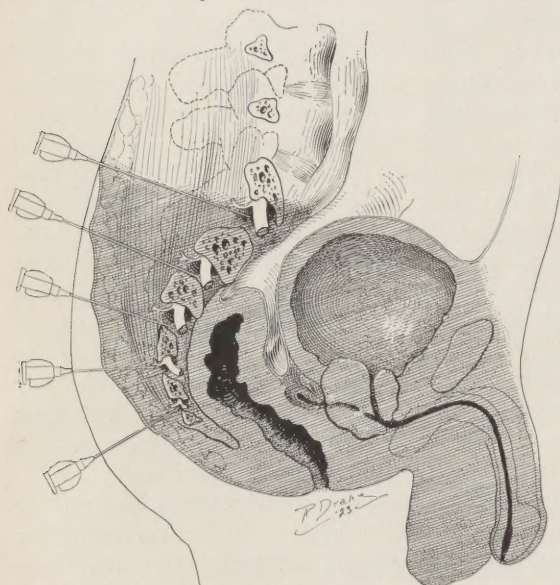


Fig. 4. Block of the sacral nerves by the transsacral method; shaded area represents extent of anesthesia.



laxation results than when infiltration of the line of incision is employed. This feature facilitates the use of retractors, resulting in better exposure. Moreover, it is just as applicable in the second stage in which the suprapubic sinus is to be dilated, as in the preliminary cystostomy.

Wheals are placed above each pubic spine, then along the outer margins of the rectus abdominis muscle, usually three on each side. After piercing the skin at the lowest wheal, deep injections are made in the same straight line at the outer margins of the rectus sheath (Fig. 5). Perforation of the aponeurosis is

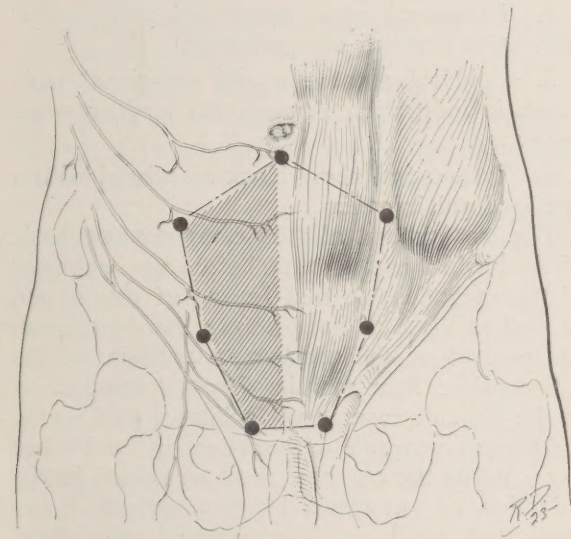


Fig. 5. Suprapubic field block and resulting area of anesthesia. The dots mark the position of dermal wheals from which deeper injections are made.

easily recognized by the increased resistance to the advancement of the needle. The aponeurosis is only perforated and the needle advanced no farther; an injection of 1 or 2 c.c. of the solution is made at this point. (Fig. 6). Successive perforations and injections are made in this manner almost as high as the umbilicus. After completion of the deep injections, subcutaneous fan-wise injections are made in the same plane

joining the wheals together. The same procedure is then repeated on the opposite side. A longer needle is passed obliquely downward toward the middle line, behind the symphysis into the space of Retzius where an injection of 10 c.c. is made. For suprapubic field block induced in this manner, from 125 to 175 c.c. of 0.5 per cent procain-adrenalin solution are necessary, depending on the size and obesity of the patient.

The anesthesia, by this method, is more nearly complete than can be obtained by other methods of local anesthesia with the possible exception of spinal. All patients are placed in the Trendelenburg position and the same retractors and other instruments employed as are used with other methods of anesthesia, and the operation is performed in a similar manner. Anesthesia is very rarely insufficient for the conclusion of the operation, and then in such cases as would require intraperitoneal anesthesia, as in transperitoneal resection of the bladder, or the resection of a large bladder diverticulum. Distress is sometimes experienced in a difficult enucleation of the prostate, but it is usually well tolerated.

There are very few complications and after-effects. The pain of induction of anesthesia is probably the most objectionable feature, yet old persons usually tolerate such pain very well so that deep preliminary hypodermic narcosis is not necessary. The general effects of the local anesthetic itself are practically nil. Palpitation and tachycardia are quite often complained of, but these are not severe and may be obviated by a slower introduction of the anesthetic solution. Nausea is occasionally experienced and rarely vomiting. But, as a rule, if there is no contra-indication, patients are able to partake of drink or light food on returning to their rooms after the operation.

It is difficult to point out any actual disadvantages of local anesthesia in these cases when

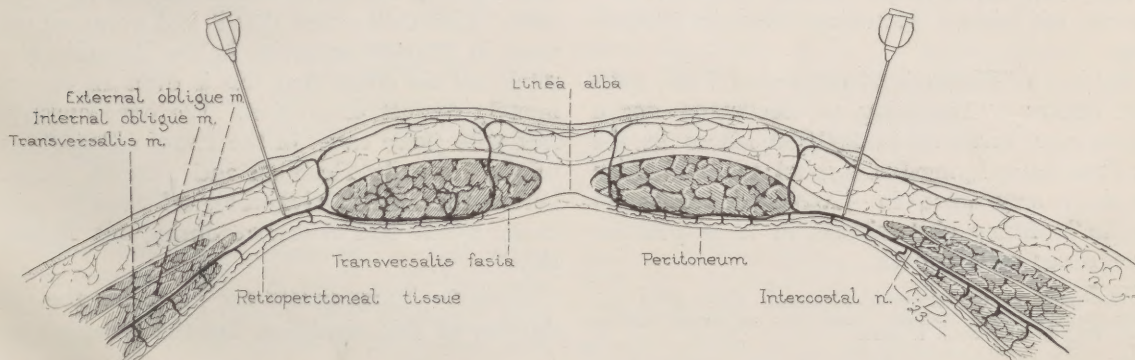


Fig. 6. Cross section of abdominal wall below semicircular line of Douglas showing deep injections made at the margin of the rectus sheath.



properly handled. The technical difficulty and time consumed in the execution of this method of anesthesia may be obviated by having the anesthesia induced in a separate room especially equipped for the purpose, and the injections performed by an assistant skilled in this branch of work. Pain and tenderness at the site of the sacral injections are usually present for four or five days and are aggravated by the fact that the patient must bear his weight on the sacral region. In addition to the effect of pressure is occasional soiling of the sacral region with urine, features which, if not guarded against, might result in infection and sloughing. This danger may be obviated by routinely placing an air cushion under the buttocks, thus taking the weight off the traumatized sacral region.

Postoperative pneumonia should be less common after local than after general anesthesia, as there is not the bronchial irritation and excessive mucus formation so common with general anesthesia, and consequently there is less danger of the patient aspirating foreign materials into the lungs. There is a notable absence of symptoms of shock and depression, and as a result patients are able to be up earlier. It is a great satisfaction to all concerned to have these patients return from the operating room as bright and cheerful as when they entered it.

#### SUMMARY

Surgery of the prostate and bladder by the suprapubic route can, in most cases, be satisfactorily performed under local anesthesia. In-

filtration gives adequate anesthesia for the suprapubic incision, although field block affords better relaxation and is better adapted for secondary prostatectomy in which there is a persistent sinus from preliminary cystostomy. For anesthesia of the prostate a choice may be made from the following methods:

1. Periprostatic infiltration through the wall of the bladder.
2. Periprostatic infiltration through the perineum.
3. Pudic nerve block and periprostatic infiltration through the perineum.
4. Parasacral nerve block and periprostatic infiltration through the perineum.
5. Epidural anesthesia and occasional periprostatic infiltration through the bladder when necessary.
6. Transsacral nerve block associated with a low epidural injection.

The last method affords complete anesthesia of the bladder and prostate before the beginning of the operation, so that lesions of this organ, as well as those of the prostate, can be treated. In removal of the prostate, anesthesia of the entire pelvic floor permits forceful enucleation in the difficult cases, and facilitates packing of the prostatic capsule or insertion of the Pilcher bag. While the operator must be skilled in the induction of anesthesia by this method, I believe that after some experience with local anesthesia, he will consider the transsacral method the one of election.

## PUERPERAL INVERSION OF THE UTERUS: THREE CASES\*

BY JAMES P. AYLEN, M.D.

FARGO, NORTH DAKOTA

*Relative frequency.*—Edgar's "Obstetrics," third edition, page 591, refers to this occurrence in maternity work as the "rarest of all complications of labor," occurring once in 200,000 cases.

William's "Obstetrics," edition of 1903, page 730, states: "According to Beckmann *not a single case occurred* in 250,000 labors in the St. Petersburg Lying-In-Hospital; while Madden noted it only once in 190,833 deliveries in Dublin." Many obstetricians in large practice have never seen a case.

Jellet and Madill, in their "Manual of Midwifery," edition of 1921, write: "Frequency.—Inversion of the puerperal uterus is a rare accident. Churchill stated that it had occurred only once in 190,000 deliveries in the Rotunda Hospital, but we doubt that this is even an approximately correct proportion. We have ourselves met with three cases in the Extern Department of the Rotunda Hospital, and Purefoy showed before the British Gynecological Society other cases which had occurred during his Master-ship."

*Causes.*—Many causes are given for the production of this condition, but the accepted me-

\*Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.



chanics seem to be that there is a dimpling of the fundus, which is gradually grasped by uterine contractions and the inversion produced. It seems that the condition is found more frequently in first labors, at least it appeared so in my cases and also in the experience of other men.

CASE 1.—Mrs. L. G., Plains, Montana. Diagnosis: Puerperal inversion of the uterus. Admitted February 24, 1913, died February 26, 1913. Aged 25; occupation, housewife; nationality, American. Operation February 25, 1913. Referred by Dr. H. H. Hattery now of Pendleton, Oregon.

Present complaint: Delivered of a normal first child December, 1912, after a normal labor. No instruments used, no traction on the cord or expression of placenta. Hemorrhage, severe at first, later pale and not so profuse and noticed a mass partly protruding through vulva. Consulted Dr. Hattery who diagnosed uterine inversion. Had usual diseases of childhood with full recovery; family history, negative.

Physical findings: Well-nourished woman, skin pale, chest negative, tongue tremulous, pale but not coated. Abdomen, flat and not tender at any point. Mass the size of a large pear covered with pinkish discharge, was protruding from the vagina, cervix grasping base of mass tightly. Temperature, 97°; pulse while in recumbent position 115.

On February 25, 1913, assisted by Dr. Paul Sorkness, of Fargo, Haultain's operation for inversion of the uterus was performed. Effort was first made to reduce by taxis and to dilate ring by vaginal route, but without success. The vagina and uterus were painted with iodine before operation. Median abdominal incision above pubes. Posterior incision of contracting ring about one and one-quarter inches long. Traction made on tubes and round ligaments and reduction easily completed. Wound and uterus closed with catgut, two sutures deeply placed. Abdomen closed with catgut by layers and dressed dry without drain.

CASE 2.—Miss M. W., December 28, 1915, entered hospital; discharged January 14, 1916; recovered. Diagnosis: inversion of uterus, puerperal. Aged 17; occupation, none; nationality, American. Operation December 29, 1915. Referred by J. B.

Present complaint: December 5, 1915, gave birth to a male child. A week after returning home from hospital noticed that discharge continued and could feel a mass in the vagina, and later the mass protruded through the vulva.

There was not much bleeding after labor, but the hemorrhage has continued ever since. This was her first child, and it was born out of wedlock. No traction on the cord or instruments used at delivery. Personal history could not be obtained; family history not given. Physical findings: Fairly well nourished, but pale; heart and lungs, negative. Skin dry and cool; tongue and conjunctiva, pale; abdomen, flaccid and not tender excepting on pressure above pelvic brim. Urine: albumin, a trace; otherwise negative. Mass presenting at vulva covered with pinkish discharge and small blood clots; cervical ring, tense. Mass could not be reduced by taxis. Temperature, 99°; pulse, 108. December 29, assisted by Dr. P. Sorkness, anesthetic ether, Dobbin's operation for inversion of the uterus was performed. Operation began 10:15 and ended 11:10. Median incision from umbilicus to pubes. With scissors contracting ring of the anterior margin of inversion funnel was incised through the thickness of the uterine wall. The bladder was partially loosened from the uterus, and the incision extended until replacement possible by traction on adnexia, after an attempt had been made to dilate the ring. Wound closed with three sutures of No. 1 formalized catgut, abdomen closed by layers with No. 0 chromic gut except the skin, which was closed with No. 00 formalized pyoktanin catgut. Wound was dressed dry without drain. Uterus and vagina were painted over with two per cent iodine solution before any operative measures were taken.

CASE 3.—This case occurred in the practice of Dr. Skelsey, of Fargo, and I am indebted to him for the following report:

Mrs. R. G. K., aged 29, American. Primipara. No previous illness. Patient in fine physical and mental condition. Health of husband excellent. November 6, 1920, 5:30 A. M. admitted to hospital. Labor stated to have begun about 2:00 A. M. of that date. On entering the hospital, there were moderate pains, about 40 minutes apart. Doctor called about noon. Os then was dilated about one-third. R. O. A. Blood pressure, 122; pulse, 70-80; urine, negative findings. Bag of waters stated to have ruptured spontaneously about 2:00 A. M. of that date, or at least before entering hospital. 6:00 P. M. November 6, 1920. First real bearing-down pains apparent, about 20 minutes apart. 7:30 P. M. same date; slight amount of chloroform, only to obstetrical degree. A living baby born spontaneously. No forceps nor manipulations. As bleeding more than normal, a hypo. of 1 c.c. ergot was given after the spontaneous delivery of the placenta. A little



later, patient complaining of some faintness and moderate distress drinks a cup of tea and apparently is doing well. 9:00 P. M. same date; complains of decided pain in abdomen. Shock intervenes. Uterus seems well above pubes and reasonably high and firm. No bleeding. Nothing detected vaginally. Pulse, 140. Strychnine, 1/30. Heat; coffee *per rectum*. Rallies somewhat. Complains of intense thirst. November 7, 1920, 1:30 A. M. very restless. Decided shock. Pulse continues high, 140 and above. Strychnine 1/30, hypo. November 7, 2:30 A. M. Decided bearing-down pains, once or twice, then the sudden and violent expulsion of the entire uterus inverted. Profound shock. Attempted to give oxygen, but some delay on account of the apparatus not working perfectly. Dr. Aylen present. Vaginal replacement by taxis of the uterus, by Dr. Aylen. No anesthetic given as patient was in profound shock. November 7, 3:30 A. M. patient expired.

Remarks: I do not believe that the first case would have died had we not contributed largely to shock by attempting vaginal reduction, and the third case evidently bled to death into her own splanchnic vessels, as the reduction was very quickly and easily obtained.

The three cases occurred during or following the delivery of the first child without instrumentation, traction on the cord, or expression of placenta, and there was no uterine tumor present in any case. Excessive hemorrhage was not marked in any of the three cases, but there was a continual drainage over some weeks in the first two cases with consequent secondary anemia.

In future neglected cases, where the uterus has been prolapsed for some time, I would use the Haultain operation, as it is easier to do, is safer, and should not produce much shock.

Quoting from Crossen: "Hippocrates wrote clearly of this condition; and up to the modern

era inversion of the uterus was treated principally by elevation of the lower part of the body and pressure on the protruding mass, that is, by posture and taxis." "As early as 50 B. C. Themison suggested amputation of the bleeding and sloughing corpus uteri and one hundred and fifty years later the suggestion was put into practice by Soranus, who amputated a gangrenous uterus, and the patient survived. From that time amputation of the bleeding corpus uteri was the usual treatment in those cases which resisted non-operative measures." "In some of these patients, particularly those past the age of 35, amputation or hysterectomy is the best treatment. In other patients, especially in younger women, sacrifice of the uterus is not the best treatment."

In brief the operations for the reduction of the inverted uterus, as related by Crossen, have been as follows:

1. Multiple incisions into the constricting cervical ring, per vaginam, (Aran, Sims, Barnes, 1861.)
2. Dilatation of constriction-ring by dilator introduced through an abdominal incision, (Thomas, 1869, with incisions; Everke, 1899.)
3. Dilatation of constriction-ring by dilator introduced through incision in fundus uteri, per vaginam, (Browne, 1883.)
4. Division of constriction-ring and adjacent uterine wall and cervix, posteriorly, per vaginam, (Kustner, 1893.)
5. Complete division of posterior uterine wall and cervix, per vaginam, (Piccoli, Morisani, 1896.)
6. Complete division of anterior uterine wall and cervix (Spinelli, 1900.)
7. Division of the constriction-ring posteriorly through an abdominal incision, (Haultain, 1901.)
8. Division of the constriction-ring anteriorly through an abdominal incision, (Dobbin, 1905.)

## STREPTOCOCCIC THROAT: A CASE REPORT\*

BY A. D. McCANNEL, M.D.

MINOT, NORTH DAKOTA

CASE 1.—Dr. L. V. P., aged 39; American.

History: December 5, while opening peritonsillar abscess, the patient coughed in his face; twenty-four hours afterwards he began to feel

grippy, and the throat became sore; was seen by family Doctor and usual treatment given him. Swab of throat taken; report next day streptococci and staphylococci. Did not rest well and following day temperature 100.2°; pulse, 104; respiration, 22; throat very sore; was removed

\*Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.



to St. Joseph's Hospital. On admission temperature 102°; pulse, 110; respiration, 22. I saw him the following evening. He complained of throat being very sore, difficulty in swallowing, and very restless, and complaining of not being able to sleep since the onset although he had been given morphine on different occasions.

Examination: Patient looked very ill, had a very apprehensive look; eyes heavy; temperature, 101.2°; pulse, 110; respiration, 24; throat, very much inflamed; tonsils, slightly inflamed, enlarged. No exudate. Posterior pharyngeal bands were very congested and stood out like cords, the whole pharynx having a very deeply congested appearance. Larynx, normal; no evidence of the inflammatory process. Both sides of neck were enlarged and slightly tender, but no glands could be palpated.

Treatment: Cleansed throat with alkaline spray and swabbed with 5 per cent silver nitrate; was given one-fourth morphine 9 o'clock P. M. Next day no change in appearance of throat (swab again taken and culture made which again showed streptococci and staphylococci), but the patient had had a very poor night, very little sleep; temperature, 100°; pulse, 102; respiration, 20. Patient still looked very sick and was very worried as to his recovery, asking me if I thought he could make it.

Progress: Condition next two days remained the same and appearance of throat did not alter, although he seemed to have more difficulty in swallowing and talked with a very muffled voice, still asking if I thought he could make it.

On Saturday evening, temperature was 99.2°; pulse, 78; respiration, 20; less soreness in throat. Following morning temperature, 101°; pulse, 108; respiration, 20; did not sleep well, although he had been given one-half grain of morphine. Appearance of throat the same, probably a little more swelling of posterior pharyngeal bands and faucial pillars. Called at 9 P. M., and on examining throat found a thin transparent exudate over both posterior pharyngeal bands. I asked the nurse if the patient had been drinking milk recently, and on getting a negative reply took another swab and made culture. While I was taking it he remarked, "You will not find diphtheria; it is strep."

Dr. Wheelon called at 10:30 P. M., when he found the patient taking a swab of his own throat and had nurse stain them and he examined them himself, and he and Dr. Wheelon decided that the organism was very suspicious of diphtheria, so Dr. Wheelon gave 70,000 units of

antitoxin at once. I was called three hours later as the patient was having great difficulty in breathing and was very apprehensive and feared an intubation would be necessary, but I found on examination that larynx was perfectly clear; thin membrane had spread to posterior pillars, and was thicker than six hours before. We decided his breathing difficulty was due to toxemia and slight antiphyllactic shock.

At eight o'clock A. M., the membrane had spread over the entire pharynx, and a small area the size of a pin-head near tip of the uvula. We decided to give him 50,000 units more of antitoxin. This was at 8 o'clock A. M. His difficulty in breathing became markedly worse, heart became very irregular, digitalin, etc., was given him, but he gradually became worse and at twelve o'clock noon I examined the throat and found membrane over entire uvula and pharynx but none in larynx. At 1:30 P. M., he died.

That afternoon C. K. Allan examined the cultures taken the night before, but could find no organism that looked like diphtheria, but streptococci and staphylococci were numerous.

In company with Dr. A. J. McCannel we called on the patient who had the peritonsillar abscess opened and found him perfectly well and wanting to go to work. Wound in throat healed; and there was no increase of temperature.

I then turned over the cultures to C. K. Allan, and he has made a very exhaustive study, using different media, and inoculating mice and guinea-pigs, and his conclusion was that the organism was a very virulent strain of streptococcus pyogenes hemolyticus.

The very interesting points of this case are the following:

1. Mode of infection.
2. The overwhelming toxemia from the onset with sleeplessness, low temperature, and pulse.
3. The apprehension on the part of the patient.
4. The appearance of membrane which simulated in a small degree a diphtheritic membrane, its late appearance and rapid spread after it did appear.
5. The appearance of a diphtheroid-looking organism at the same time as the membrane which cultural growth and experimental inoculation did not prove to be diphtheria.

CASE 2.—Another interesting case was a woman who said she had a silver dollar in her throat. She was a Russian woman and could not talk English, but on examination I found that her statement was true, and by means of the esoph-



agoscope I removed the dollar without difficulty.

The interesting thing was how the dollar got there. She was the mother of several children and was unable to get any money from her husband. She finally managed to save enough to get this dollar, and when her husband discovered her with it she at once placed it in her mouth. He chocked her in an effort to take

it away from her, and the dollar slipped into the esophagus. Being afraid of her husband she let it remain in her throat for three months, when her throat became so painful she consulted her family doctor, who referred the case to me. As you see the dollar was lodged behind the manubrium in the upper third of esophagus (exhibiting dollar and roentogram.)

## HYPOTHYROIDISM, WITH SPECIAL REFERENCE TO THE MINOR THYROID DEFICIENCIES\*

By E. L. GARDNER, M.D.

MINNEAPOLIS, MINNESOTA

### A. Physiological hypothyroidism.

Thyroid function influenced by:

1. Age: infancy, childhood, puberty, and old age.
2. Menstruation, pregnancy, climacteric, and sexual life.
3. Diet and nutrition.
4. Temperature and season.
5. Physical and nervous activity.

### B. Primary or congenital hypothyroidism.

1. Congenital athyroidism.—Embryonic absence of thyroid development.
2. Cretinism.
  - a. Endemic.
  - b. Sporadic.
3. Congenitally deficient thyroid glands, associated with minor thyroid deficiency.
  - a. Infantile.
  - b. Adult.

### C. Secondary or acquired hypothyroidism.

1. Infantile and juvenile hypothyroidism and myxedema.
2. Adult hypothyroidism and myxedema.
  - a. Surgical.
    - (1.) Following thyroidectomy, radium, Röntgen ray, etc.
    - (2.) Following operation on other endocrine glands.
  - b. Following hyperplasias of the thyroid.
  - c. Thyroid degeneration following infections and toxemias.
  - d. Associated with disease of other endocrine glands.

Our knowledge of thyroid function began with Gull's report, in 1874, when he published a study of five cases of a disease in women characterized by a condition which we now know as *myxedema*. The Reverdin brothers (1882) and Kocher (1883) described similar findings following thyroidectomy, but the picture was confused by symptoms of parathyroid deficiency until after Gley, in 1891, anatomically

demonstrated the parathyroids as distinct from the thyroid gland. The literature has been confusing until within recent years. The majority of physiologists and clinicians now believe the parathyroids and thyroids have very little relation to each other, and the functions of each are clearly defined. The thyroid is abundantly supplied with blood vessels and nerves; and its anatomical structure allows rapid variations in size. A direct secretory control has not been demonstrated, but the functions of the gland depend to a greater extent upon sympathetic influence.

Baumann, in 1895, showed that iodine in organic combination existed in normal mammalian thyroids. He isolated a substance which he called "iodothyrene," and it was marketed as "thyroidin." Oswald (1899) showed that iodine was in combination with and varied with the amount of visible colloid. Hyperplastic glands were shown to be rich in globulin and nearly iodine free. This work was enlarged upon by Marine and his co-workers, who conclude "that the iodine store in the thyroid varies in general with the amount of stainable colloid, inversely with the degree of active hyperplasia, and in extreme degrees of active hyperplasia seen in cretinoid states in man and animals the iodine store may be entirely exhausted." Kendall has recently (1916) recovered from the thyroid gland a crystalline substance, "thyroxin," which contains 65 per cent iodine and has the same pharmacological action as thyroid gland.

Thyroid function has been studied by two methods: (1) by thyroid excision; (2) by feeding thyroid gland or its products. Thyroidectomy, if complete, always produces definite

\*Presented in part before the Interurban Academy of Medicine, Duluth, Minn., July, 1923, and before the Minnesota Academy of Medicine, November, 1923

effects in mammals, but the result varies with the age of the individual. There is a most marked reduction of the total metabolism in all cases which begins in six to eight days and reaches a maximum in thirty days. The metabolism reaches a constant of—35 per cent to—40 per cent, the “myxedema level.” Extirpation of the thyroid in young animals causes an extreme retardation of physical, mental, and sexual development; the osseous system fails to grow; there are myxedematous changes of the skin; and idiocy. Half-grown animals become apathetic, their movements slow and awkward, and all physical activity becomes a burden. Mental development fails, and the animals do not sexually mature.

Adult animals show a reduction of metabolism, subnormal temperature, dryness and thickening of the skin, falling out of the hair, and usually a gain in weight. The signs of thyroid deficiency appear very slowly, and several months or a year may elapse before myxedema can be recognized. The first symptoms may appear after some infection or intoxication. Adult female animals are likely to be sterile, abort if pregnant, or give birth to thyroid deficient offspring.

Thyroid feeding in normal and thyroidectomized animals has given much information concerning thyroid function. Murray, in 1891, showed the effects of thyroid feeding in a myxedematous patient. Since then an enormous amount of research has been done in man and other animals.

Thyroid material has been found to speed up all metabolic processes, an action which has been used by Gudernatsch in the tadpole test for the pharmacological activity of thyroid extracts. In tadpoles thyroid extract of iodine causes a rapid loss of weight with metamorphosis in a few days. In normal mammals the respiratory exchange and total metabolism is increased. Thyroidectomized animals do not develop signs of thyroid deficiency if fed the active iodine of thyroid gland.

Branchi, Jacobi, Wassermann, and others believe that the blood serum of thyroidectomized animals has a diminished bactericidal action. Antitoxin formation is less (Houssay and Sordelli, Clevers, and others); and Koopman recently reports an increase of amboceptor in rabbits by thyroid feeding. Many observers have noticed that myxedematous patients are markedly susceptible to infections. On the other hand, Marine believes that “results obtained do not

warrant any direct association of the thyroid with antibody formation. The reaction to infections, as shown by a reduction in the iodine store and a tendency to hypertrophy and hyperplasia, clearly indicate the thyroid is an important *indirect* factor in resistance to infections.” McGarrison believes that the thyroid (1) “governs the growth of cells and sustains their functional activity; (2) controls calcium metabolism; (3) is a profound catabolic stimulant; and (4) exercises a protective antitoxic and immunizing action, defending the body, not only against toxic products of its own metabolism, but against invasion by disease-producing micro-organisms and injury by their products.” Various observers have suggested that the thyroid controls phosphorus, arsenic, and sulphur metabolism, but experimental evidence is uncertain.

In the light of the more recent work (Kendall, Marine, and others) it seems most likely that abnormal combustion in the body tissues secondarily produces all the findings of thyroid dysfunction and that the active principle in the thyroid gland has a comparatively simple pharmacological action. Marine has recently summarized our knowledge of thyroid function as follows: “All we know of its function indicates that it provides the means for maintaining a higher level of metabolism and for varying its rate.”

The mechanism for the control of thyroid secretion is a sensitive one in order to care for demands varying from time to time. During fetal life the developing thyroid is susceptible to maternal influences. Dietary influences, infections, or intoxications in the mother cause profound abnormalities in the fetus, as evidenced by hypertrophy, hyperplasia, or fibrosis of the fetal thyroid. The thyroid of the normal fetus and young infant contains very little iodine for the first few months; maternal iodine is obtained through the placenta or by lactation. The iodine function in the young is stimulated when solid food is taken. Cow's milk contains very little iodine since the calf supplements its milk diet with other food and does not need maternal aid, hence an iodine-deficient food for infants. The thyroid is active at the time of second dentition and of puberty at which periods toxemias or other strains may produce deficiency symptoms. The sexual act and marriage cause more or less instability. Brooks has called attention to what he calls physiological hyperthyroidism, especially in young women during peri-



ods of emotional output, such as in the active phase of an artistic career, courtship, early months of marriage, menstruation, and pregnancy; it may occur in young men who are under the severe strain of competitive athletics. He especially emphasizes that these are often only physiological variations and need only causal therapy. The climacteric and old age may be followed by suppression of thyroid function.

The iodine store of the thyroid varies with the season, being lowest in the spring months. This has repeatedly been shown in the thyroid glands obtained from cattle, hogs, and sheep. Hibernating animals are said to have the greatest seasonal variation, accounting partially for the subnormal temperature during winter months.

The iodine content may be influenced by diet. Baumann has shown (1896) that in dogs fresh meats cause hypertrophy and hyperplasia of the thyroid, while sea fish increase the iodine store. McGarrison has shown that fats also deplete the iodine store of the thyroid gland. Any iodine-deficient diet may lead to thyroid deficiency, hyperplasia, and enlargement of the gland. Salmon and trout raised in hatcheries and fed liver often develop goiters, which may be prevented by iodine feeding. In the Yellowstone River valley millions of pigs and many colts, calves, and lambs are lost each year because of thyroid deficiency. Smith, Hart, and Steenbach have shown that the birth of pigs in a hairless condition may be prevented by feeding the pregnant sows potassium or sodium iodine. In man goiter and evidence of iodine deficiency are common in regions where there is likely to be little iodine in the food. Marine and Kimball have shown conclusively that the administration of small amounts of sodium iodide prevented thyroid hyperplasia in school girls at Akron, Ohio. In adults heavy meat eaters have higher basal metabolism than vegetarians; and in starvation and malnutrition the metabolic level is definitely below the normal.

A definite relationship exists between the thyroid and sex glands, as shown by thyroid enlargement with menstruation, puberty, pregnancy, and sometimes at menopause. Some recent experiments show that the suprarenal cortex has an inhibitory control over thyroid function. Injury to the suprarenal cortex causes definite changes in the thyroid and also in other tissues. There is a partial destruction of the suprarenal cortex of infants about three weeks of age at the time when the thyroid activity begins. Sup-

pression of sexual function or removal of the sex glands usually causes slight depression of thyroid function. The basal metabolism is increased before menstruation and slightly drops following it.

Individuals of nervous temperament or engaging in severe physical strain are more likely to have higher rates than sedentary phlegmatic types, but this is not always true. There is probably some indirect relationship between hypophyseal and thyroid function, but experimental evidence is conflicting.

The human thyroid iodine content probably should not exceed 25 mgm. at any one time, averaging 1 mgm. per gram of dried substance. Kendall's thyroxin contains 65 per cent iodine, and Plummer estimates that about 1 mgm. daily is sufficient for normal activity.

Researches of Kendall, and of Marine and Pozoff show that iodine has great affinity for colloid material but that it is only slowly converted into active thyroxin. An optimum amount of thyroxin functioning in the body at one time is about 15 mgm.; any more or any less is likely to produce symptoms. Kendall suggests that the action of thyroxin may be that of a catalase and may be used over and over with little waste.

In any consideration of thyroid physiology we must remember the thyroid function in health is not a constant, but varies from time to time, depending upon the demands of metabolism and outside influences.

The simplicity and reliability of the estimation of basal metabolism has stimulated a new interest in thyroid function. This interest has been especially concentrated on the so-called hyperthyroid states. Cretinism and typical myxedema may be easily recognized clinically, but often times the minor thyroid deficiencies can only be suspected; it is here that basal metabolism estimations are of inestimable value. Minor thyroid deficiencies may be due to various causes but the symptoms are much the same, varying mostly according to the age of the patient. If in a *suspected* case of thyroid deficiency the basal rate curve is subnormal, we can probably say the patient is subthyroid, but a positive therapeutic test makes the diagnosis conclusive. The estimation of basal metabolism has made the diagnosis much more certain, but not infallible. Lowered metabolic rates are common, but the statement that they run parallel with thyroid function probably is not justifiable. The greatest discrepancies appear through slight



errors in technic, but other factors may materially affect the results. The majority of myxedematous patients have a rate of 20 per cent to 40 per cent below the normal, but some malnutrition cases will reach 20 per cent below normal. Some patients with symptoms and findings suggesting minor hypothyroidism will show a curve only by repeated examinations which is definitely below the normal limits.

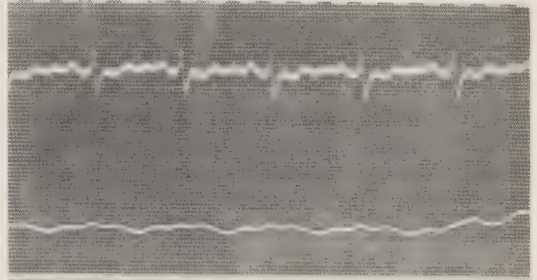
We have looked over 275 cases that have had a basal metabolic rate varying from 0 to 40 per cent. Most of the patients were ambulatory, in whom we suspected some thyroid or other endocrine gland disturbance. About 40 per cent of the cases were 10 lbs. or more underweight and probably should be classed as "malnourished," which would therefore materially affect the basal metabolic readings. We have found that normally nourished well individuals rarely fall below -5 per cent.

In the above subnormal group exclusive of the undernourished cases females outnumber males 6 to 1. Thirty-four patients were under twenty years of age; the majority of these had goiters of adolescence, a few were girls with various nervous symptoms associated with delayed menstruation, and the others had multiple endocrine gland disturbances. All of these young girls showed improvement after the administration of iodine or thyroid extract, with the exception of some of the multiple endocrine gland cases. One child suffering from polycythemia associated with large spleen and cirrhotic liver showed marked improvement after feeding with thyroid extract.

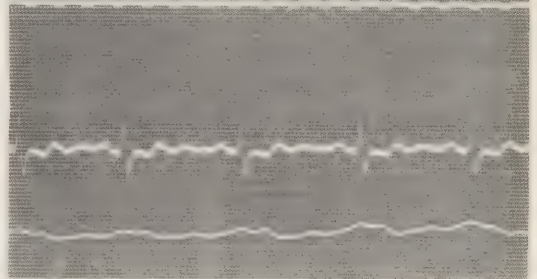
Malnutrition caused a lowered metabolic rate in 40 per cent of all the cases studied. Of 53 patients in the third decade of life, all except five had to be placed in this undernourished group; two of the five had had a previous thyroid operation, two ovariectomy, and one a premature menopause of unknown cause. Myxedema and minor hypothyroidism appeared most commonly in the fourth, fifth, and, less often, in the sixth decades of life. Malnutrition was only one-half as common in these decades; but menstrual disturbances, pelvic operations, multiple pregnancies, and disturbances near the menopause occurred more often. Several cases first showed symptoms after ovariectomy or removal of fibroids. Only 14 cases were over sixty years of age, and only six of these showed signs of diminished thyroid function, the other eight were undernourished. Ten cases of the entire series showed typical myxedema.

The condition of the thyroid was noted in the majority of the cases. In myxedema and definite thyroid deficiency the gland often shows signs of atrophy or sclerosis. In many of the minor cases, especially in young people, there was slight or moderate enlargement. About 50 per cent of the entire series had thyroids which clinically could not be differentiated from the normal.

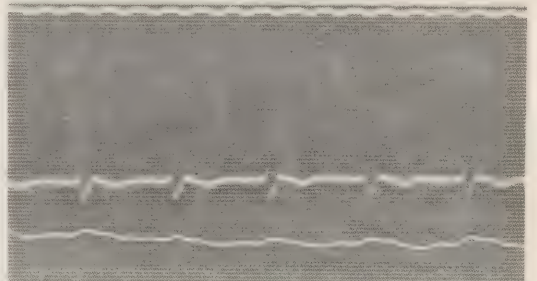
D I.



D II.



D III.



Patient 5078

May 20, 1919

1. Periods of marked auricular flutter.
2. Abortive block.
3. Inverted T.

In a separate series of cases we have repeatedly found lowered basal metabolic rates following infectious diseases, such as pneumonia, acute tonsillitis, typhoid fever, acute rheumatic fever, etc. Convalescence very often was tedious, and improvement was apparently faster in those whose metabolism quickly returned to normal limits. Many of the symptoms of convalescence, such as subnormal temperature, slow pulse, lack of endurance, susceptibility to cold, tendency to atony of striated and non-striated muscles, rapid



gains in weight etc., might be attributed to lowered thyroid function, as a result of a toxæmia of all the cells of the body, the thyroid included. Much of the old treatment of post-infective cases was directed towards increasing muscle tone and stimulating metabolism. No sharp line can be drawn between physiological depression of thyroid function and real pathological degeneration of the gland.

*Diagnosis of hypothyroidism.*—It is not possible in all cases to decide whether the thyroid depression is the cause of the symptoms, or whether it is a part of the generally lowered metabolism; malnutrition and post-infective cases probably belong to the latter group. The following symptoms and signs justify the suspicion that subthyroidism may exist and that basal metabolic studies should be made. (It is often difficult to elicit symptoms from subthyroid patients; and they do not volunteer information because of their mental state.):

1. Lack of endurance and sense of fatigue, especially in the latter part of the day.
2. Mental depression and loss of power of concentration.

3. Susceptibility to infections.
4. Secondary anemias without apparent cause.
5. Changes in the skin, especially increased sensitiveness to cold, formation of pads, tenderness upon pressure, and less often dryness or loss of hair (eye-brow sign of Hertoghe).

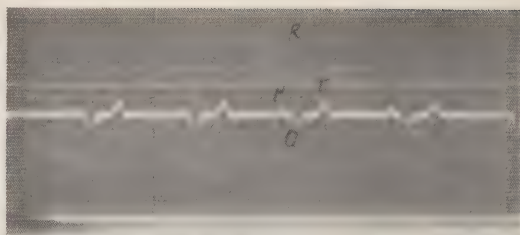
6. Unexplained menstrual disorders.

7. Any of the symptoms associated with myxedema may appear singly or in groups, but the above symptoms are most common in the early cases. No one or no group of signs is infallible; the therapeutic test sometimes must be employed.

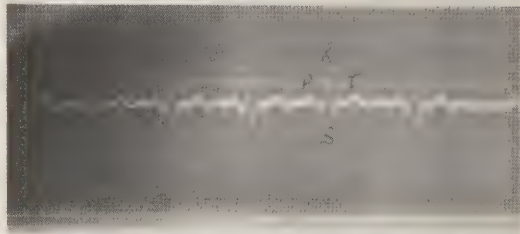
True myxedema may produce symptoms which may be referred to any part of the body, and the same may be said for all hypothyroid cases.

*Thyroid therapy.*—Thyroid extract or thyroxin forms only a part of the treatment. It is needless to say that all possible causative factors should be corrected. Definitely infectious foci should be removed; the proper diet should be prescribed to build up the malnutrition (often viscerotropic) patients, and the food should contain sufficient iodine and vitamin principles. Thyroid extract often acts as a stimulant to the appetite and to the glandular and muscular activities in the malnutrition type of patient. Many conditions have been attributed to the minor thyroid deficiency where the signs and

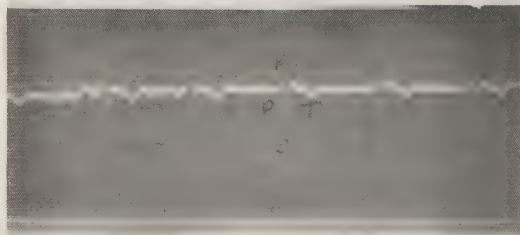
D 1.



D 2.



D 3.



Patient No. 5078.

June 3, 1923.

Rate 60-70.

Marked Sinus Arrhythmia.

P. R. —.16 Second.

P. 3 inverted.

T. 3 inverted (No digitalis).

Left ventricular preponderance.

The change to this type of cardiogram was gradual over a period of four years.

results did not warrant such conclusions; the history, physical findings, basal metabolism and the therapeutic test must all be given proper consideration before a diagnosis is made, but thyroid extract is a powerful agent "to fan up the fires when they are smoldering" until the body has a fresh chance. A few of the following conditions which may be helped by thyroid therapy if thyroid insufficiency is a cause of the cellular changes:

1. Lowered metabolism with atonicity of muscles, striated and non-striated, producing a multitude of indefinite symptoms. Subnormal temperature is not constant in these cases.

2. Trophic condition of the skin, hair, nails, and teeth. There is no evidence to prove that any skin diseases are primarily due to subthyroidism. Subthyroid cases, upon contracting skin diseases may improve more rapidly if the subthyroid state is corrected.

3. Secondary anemia and occasionally hemorrhagic states.

4. Low blood pressure and low pulse pres-



sure. Occasionally high blood pressure occurs in hypothyroid states and will respond nicely to iodine or thyroid extract. The viscosity of the blood is said to be increased in subthyroid states and iodine is supposed to decrease viscosity.

5. Heart disease: In myxedema the heart action is often slow and feeble, the heart is enlarged to the right and to the left, and the electrocardiogram shows signs of myocardial disease. The same may be true in minor cases. We have repeatedly noted patients who clinically and by electrocardiograms showed evidence of serious myocardial degeneration, and yet showed rapid gains and improvement of the electrocardiogram after thyroid feeding, even after removal of focal infection, treatment of toxemia, and other procedures directed toward improvement of the heart muscle had already failed; and then again seen relapses when the thyroid therapy was discontinued.

6. Susceptibility to respiratory infections.

7. Gastro-intestinal: Suppression of the secretions, atony, constipation, and intestinal auto-intoxication may be helped. Cases of achylia or hypoacidity are common and may improve with the general condition of the patient.

8. Albuminuria and occasionally casts (Common in myxedema).

9. Enuresis in children is sometimes helped by thyroid therapy.

10. Menorrhagia without other cause or decreased menstruation, especially in young adults.

11. Early sterility, especially with premature menopause, are said to be thyroidal in origin. We have had several rates which were low, but no definite improvement after thyroid extract, except in the occasional case.

12. Eye infections (and by one observer, cataracts in dogs) are common in subthyroid animals. In men, keratitis punctata and slowly healing corneal ulcers are said sometimes to heal more quickly.

13. Tinnitus and deafness due to subthyroidism.

14. Retardation of mental processes; irritability of temper; and mental depression. There is no evidence that various nervous diseases and many psychoses are directly due to thyroid hypofunction. If such occur in a subthyroid patient improvement may be noted.

15. Developmental abnormalities.

16. Pregnancy: Hypothyroidism may lengthen pregnancy, and fetal athyroidism or subthyroidism may result.

17. Chronic arthritis is occasionally helped. This condition must be differentiated from myxedematous infiltration about the joints.

18. Slow convalescence following infections.

Much conflicting evidence occurs in the literature, but the above outline seems to be warranted from a review of the literature and clinical observations. Pathology does not offer much help. Only gross anatomical changes, such as atrophy and sclerosis can be observed. Degenerations and inflammations occur in the thyroid similar to other glandular tissue in the body, but minor hypothyroid states do not show, as a rule, gross pathological changes. The clinician must determine when abnormal physiology exists.

*Dosage of thyroid extract.*—Thyroid extract dosage must be controlled by clinical symptoms and by the basal metabolic rate, which should not be allowed to go above normal. Physiological hypothyroid cases are often very sensitive to small doses. "Thyroxin" has a more constant potency, but is not necessary; the thyroid extract on the market is usually active, but is variable. A large number of tablets may be prescribed, and the dosage determined for the patient. After a few months experience the patients very often can determine what their optimum dosage is by their sensations when the basal rate is within normal limits. When once the optimum amount of "thyroxin" is present in the body, small doses, in many cases, will maintain the desired effect, but in some patients the principle disappears (or its action), so that relatively large doses are necessary. One grain of the usual extract (we have used Armour's and Parke, Davis and Co.'s) per day is often sufficient in the minor cases. Some deterioration of the extract occurs when standing and exposed to the air.

What are the results of thyroid therapy? Many of the most grateful patients are those who have been helped. They have been treated for first one symptom and then another or not treated at all because they are "neurasthenics." The results sometimes are disappointing, but the attempt is always justifiable. Patients with normal cellular activity are better candidates for good health than those with abnormal, but the pathological changes in the body are sometimes so permanent that nothing will do much good. All other methods for improving the patient's health should be employed, such as hygienic, dietary, and corrective; thyroid principle is only an additional, although a very important, aid.



## ILLUSTRATIVE CASES

**CASE 1.** (Patient No. 587).—First visit, February 4, 1919; female; aged 40; married; had two children by a former husband. The family history was unimportant except that one brother was "feeble-minded." The patient had had no illness except the common children's diseases. Four years ago she had one ovary, the appendix, and hemorrhoids removed. She says she has not been well since her last child was born, eleven years ago. Has felt weak, tired and sleepy. Arises in the morning feeling fairly well, but by noon is exhausted and sleeps much of the afternoon. Was not relieved by her operation four years ago. One year ago (1918) began to have profuse menstruation once a month; no menstruation now for three months, and has hot and cold flashes. She states that her flesh feels tender, and there are some indefinite aching pains throughout her body. In recent years has gained several pounds in weight. The patient states she mentally becomes depressed, is irritable, and memory is poor. The history was hard to obtain because the patient did not volunteer much information.

The patient was a large woman of good nutrition but flabby. The skin felt thick and was slightly tender especially about the breasts and abdomen, and there was a tendency to dryness. There was a slight positive Dalrymple sign, but the thyroid could not be palpated. The blood pressure at first examination was 150-90. The heart, abdomen, and pelvis were negative. The nervous examination showed nothing. The blood and urine were entirely normal.

Comment: This case shows an early myxedema case following climacteric in a patient who possibly always had poor thyroid reserve. Therapeutic results good.

## BASAL METABOLISM. PATIENT NO. 587

Date	R. Q.	Rate	Pulse	Thyroid gr. per. day	Comment
1919					
Feb. 4	.75	-30	60		
April 9	.91	-21	66	$\frac{3}{4}$	
April 30	.71	+11	81	1	Slight tremor—Normal menstruation.
June 20	.74	+11	80	$\frac{3}{4}$	
July 19	.79	-5	77	$\frac{3}{4}$	
May 29	.72	+4	75	$\frac{3}{4}$	
Sept. 17	.79	-8	63	$\frac{3}{4}$	
Oct. 1	.78	+10	68	Disc.	Some toxic signs.
Nov. 13	.76	+8	62	$\frac{1}{2}$	
1920					
Jan. 14	.82	+14	70	1/12	Slight hyperthyroid signs. W. b. c., 7,300.
April 5	.75	-15	64	1/12	
June 3	.85	-22	68	$\frac{1}{2}$	W. b. c. 5,300. P. m. n. 65%.
July 21	.83	-2	70	$\frac{1}{4}$	
1921					
Jan. 1	.76	-12	70	$\frac{1}{4}$	
March 24	.73	-36	64	$\frac{1}{4}$	Inactive extract—Signs of hypothyroidism.
Sept. 13	.73	-6	68	$\frac{1}{4}$	
1922					
Feb. 21	.85	-10	66	$\frac{1}{4}$	
March 15				$\frac{1}{4}$	Feeling fine; good endurance. Skin moist. B. p., 120-80.
1923					
March 15				$\frac{1}{4}$	Good endurance; Skin moist. No loss of weight. No skin tenderness.

This chart also shows the effects of an inactive extract. The patient at present time continues taking an extract and reports once in six months. She controls the dose by symptoms.

**CASE 2.** (Patient No. 5078).—Female; single; aged 39. Was first seen May 5, 1919, with all the signs of cardiac decompensation. Mother died of heart disease at 57. Father is living and well, and two brothers are healthy. Patient had never been strong. Has had rheumatic fever twice with heart complications so that she was confined to bed for two winters. She injured her back and fractured pelvis in 1904, the uterus and left ovary were removed in 1907, the right ovary and appendix in 1908, and had an operation for adhesions and intestinal obstruction in 1913. She has gained thirty pounds since 1913. Some swelling of feet and ankles has appeared off and on for past seven years. She has not menstruated since the operation in 1907. She has had repeated infections in respiratory tract and "gall-bladder." She has had chronic "heart trouble" with palpitation, swelling of feet, and dyspnea since 1911. In July, 1917, she had an "infected gall-bladder" with cyanosis and very slow pulse which was said to be thirty per minute; was in bed several weeks. Since then has frequently had a "heart attack" after exertion, or infections. At times the patient has become unconscious for a few minutes at the time of the attacks. Lately she has spells of vertigo for a few seconds, recurring every half hour. She thinks this is related to cardiac irregularity.

In 1918, after severe pain in the head, she lost the vision of the right eye; the eyeball "protruded and became blue;" this was associated with one of her "heart attacks." This blindness lasted only an hour and disappeared. The last attack of cardiac irregularity, vertigo, and temporary unconsciousness began four months ago while the patient was in California. It was thought she would succumb, and she was sent home with diagnosis of myocardial degeneration, with the probability of an early death.

Upon examination on May 5, 1919, we found a very nervous woman with temperature of 99° and pulse of 68. There was some dyspnea even while lying in bed. She was over-weight; the skin was moist, but thickened and everywhere tender upon pressure. Some indefinite pads about clavicles. Two non-vital teeth were suspicious only. The tonsils were small, and caseous material could be expressed from crypts. The fauces were deeply injected. The thyroid gland was slightly enlarged. The heart was enlarged, both to left and right, and of globular shape; the tones were hardly audible; there was a soft systolic murmur localized at the apex. The abdomen showed many scars, and there was tenderness over the liver.

On May 5, 1919, the patient had extreme tachycardia, irregular pulse, and precordial pain. Very often while talking the patient became extremely flushed, the neck vessels engorged, and the right eyeball protruded; the patient became dazed for a few minutes and then continued talking. During this period the pulse was very irregular and rapid.

The laboratory findings showed a normal hemoglobin and erythrocyte count. The leucocytes were never above 8,800. The differential showed an



average of 45 per cent polymorphonuclears and 51 per cent lymphocytes. The Wassermann was negative, and the urine normal except for traces of albumin. The blood pressure was 150-90. The basal metabolism was -15 per cent in spite of the fact she had a temperature of 99.°

We believe we had three factors working in this patient:

1. Cardiac.
2. Infection? (gall-bladder, teeth, tonsils?)
3. Endocrine gland disturbance.

The patient was given six grains of thyroid extract a day, and the metabolism has been kept normal ever since by giving one-half grain of thyroid extract three times a day. She has also been given a few doses of corpus luteum each month. Later the tonsils and two non-vital teeth were removed, but there was no evidence of infection. Improvement was rapid.

The patient is now doing moderate hill-climbing, looks after a large household, and, except for a decreased cardiac reserve, appears to be normal as long as she continues to take an active thyroid preparation. An extreme pulsation of both arteries and veins in right eye fundus has entirely disappeared. The heart action is regular and the electrocardiogram is essentially normal. (See tracings.)

This case suggests that thyroid deficiency played a very important part in the patient's condition. Whether the symptoms were due to the myxedematous changes alone or also to infections is uncertain. The blood picture was not that of infection and at present time the leucocyte count is 5,300, with a p. m. n. count still less than the lymphocyte.

Ovariectomy and early menopause probably influenced the symptoms and cellular changes.

CASE 3. (Patient No. A290).—Female, aged 13. First examination November 6, 1920. Her mother had had manic depressive insanity. Three sisters and father were living and well. No goiter in the family. The patient had always been robust. Menstruation started five months before, but was scanty and irregular. The neck began to enlarge at this time, and has gradually increased in size. The examination was entirely normal except for the slightly enlarged, but smooth, thyroid. The leucocyte count was 13,500, and the differential was normal. The basal metabolism was -21 per cent. Thyroid extract was given in doses sufficient to raise the metabolic rate to normal. The thyroid enlargement disappeared, and menstruation became normal.

This case illustrates the thyroid enlargement of adolescence, which was so exaggerated as to worry the patient and her friends. Marine and co-workers have shown that goiter may be prevented or cured in school girls by administering 2 grams of sodium iodide each year.

CASE 4. (Patient No. A414).—Aged 58; male; married; physician; first seen in 1914. Had typhoid fever in 1890, following which he gained sixty pounds. In 1904 he had a nervous breakdown. Following this he continued to be miserable, nervously depressed, and had attacks of vertigo, which caused him to fall to the floor. He thought he had heart disease because of the vertigo and sense of impending dissolution.

The skin was muddy and thick, the eyebrows were thin, and the pulse slow. He was then (1914) placed on thyroid extract with rapid loss of weight and great improvement. He was again examined in 1921. He had taken thyroid extract off and on since 1914. He was now worried about pains in the joints and muscles, which he thought were rheumatic, and for which he had recently had tonsillectomy performed without improvement. The findings suggested thyroid deficiency; and the basal metabolism was -15 per cent in spite of the fact he was then taking thyroid extract. With increase of the dosage the symptoms have promptly disappeared.

This is probably a case of gradually increasing hypothyroidism following the toxemia of typhoid fever.

CASE 5. (Patient No. A1460).—Aged 44; married; no children. Came to office November 24, 1922, complaining of (1) pains in joints and extremities; (2) loss of strength; (3) indefinite abdominal distress; (4) susceptibility to cold; (5) excessive sweating; (6) nervous depression; (7) weakness.

The family and past history are not important except the patient states she always chilled easily and had many "colds." Says she never could keep warm enough and formerly could not perspire. She had taken a cathartic every night for twenty years, and had some left lower abdomen distress at times. Menstruation has always been irregular, but otherwise normal.

For three or four years has had "rheumatic pains" without swelling or redness in "joints and muscles." This greatly increased after influenza in March, 1922. At times she had slight fever, she thinks. Has had to wear woolen clothes and bedding even during the hottest days. Feet chilly all the time, although they often perspired.

The examination showed a greatly mentally depressed woman, fairly well nourished, sallow color, but the skin was moist, due to several layers of woolen coverings, although the patient was in bed and the room at 80.° The skin felt thick, and the patient complained of tenderness upon the slightest pressure. The gums were spongy and congested. The tonsils were questionable. The thyroid was small and hard. Blood pressure, 80-40. Nothing could be found in the chest except muffled heart tones. The skin of the abdomen was tender, and there was some deep tenderness over the course of the colon. The pelvis was normal.

The urine was normal. The leucocytes averaged 10,200, and the differential was normal. There was an achylia gastrica, but a normal x-ray examination of the gastro-intestinal tract, except for a poorly haustrated colon. The stools contained mucus. The basal metabolism was -18 per cent.

Treatment.—Thyroid extract was given sufficient to give a normal metabolic rate. The patient was also given a non-irritating diet until the stools were normal.

Results.—The patient dressed like other women after two months time, the pains disappeared, and mentally her husband, who is a physician, says she is like a different woman.

Comment.—The thyroid seems to have been an important factor in the symptoms. Focal infection and an irritable colon may have played a part.



CASE 6. (Patient No. A1117).—First examined September 26, 1919. Aged 11; female. Came because of attacks of unconsciousness, which had been diagnosed as epilepsy.

At four years of age she began to throw things while at the table and walked on toes. She was thought to have chorea at the time, and the tonsils were removed at six years of age without improvement. Had a fever for two months after tonsillectomy without apparent cause. At seven years of age the child had an attack of unconsciousness and fell backward with muscular contractions. These attacks came on every three months, and at eight years of age she was treated for possible epilepsy by a competent neurologist. The last attack occurred only a short time before this examination. The patient is very nervous and irritable after the attacks. Now shrugs shoulders and is always moving hands and feet. Never has had headache, vomiting or digestive disturbances.

Family history: Mother died during a simple acute respiratory infection, and is said to have had status lymphaticus. One sister (older) is said to have had status lymphaticus during childhood, and an aunt (Case 2 of this series) had endocrine gland trouble.

Examination: An unusually bright, active child; but nervous. Well developed. Skin dry and scaly. Skin somewhat transparent. Increased dullness under upper sternum. Pulse very slow (60). The white blood count shows 52.5 per cent lymphocytosis. Leucocyte count average 12,000. The basal metabolism was repeatedly —30 per cent. The sella turcica was slightly irregular, but could not be said to be abnormal. X-ray shadow under sternum is widened.

Results: Patient was given enough thyroid to make the metabolism normal. No more convulsions. Menstruation, normal. Is now in second year of high school and very active.

## EXPLORATORY THOROCOTOMY IN ALL SEVERE INJURIES OF THE CHEST\*

BY KARL W. DOEGE, M.D., F.A.C.S.

MARSHFIELD, WISCONSIN

Exploratory abdominal section is a safe and generally recognized procedure, indicated whenever serious pathology is suspected in the abdomen, yet a diagnosis, through failure of ordinary clinical methods, cannot be arrived at. Combined, however, with this purely diagnostic purpose is always the avowed intention of simultaneously applying such corrective surgical measures as the conditions found would require, and as safely would permit. The latter intent is the moral justification for the procedure and also the main inducement for the patient to give his consent. It cannot as yet be said without fear of contradiction that the operation under discussion,—exploratory thoracotomy,—is universally recognized as a safe surgical operation. The fear of fateful consequences that have occasionally followed the formation of a pneumothorax is in the minds of many surgeons, and has acted as a powerful deterrent in the application of this useful and often very necessary operation. I feel quite convinced, however, that this fear is very much exaggerated, and is quite unfounded, if the surgeon performing the operation is but conversant with the elementary technic of thoracic surgery. As I am addressing an essemblage of railway surgeons it cannot be

my purpose to advocate the performance of exploratory thoracotomy in thoracic diseases generally, but I shall confine my remarks to its indication and technic in severe traumatism of the chest.

Physiologists have stated that double pneumothorax always is fatal. They say that, when a unilateral pneumothorax is produced and the negative intrathoracic pressure is supplanted by the positive atmospheric pressure, the involved lung collapses, and that the respiration in the other side is so interfered with as to lead to dangerous dyspnea and death. We know that this is not always the case. Herman Kuettner reports three cases of shell wounds of the chest with unquestionable double pneumothorax who recovered, and in my own experience I have never seen any embarrassment of respiration following the occurrence of accidental or purposeful production of complete unilateral pneumothorax. Observations similar to my own are to be found plentiful in the literature, and the French surgeons regard pulmonary collapse in thoracotomy as a favorable occurrence rather than otherwise. That unilateral pneumothorax has occasionally produced severe respiratory disturbances and death there can be no doubt, and it is necessary clearly to understand the physics of this occurrence in order to avoid, if possible,

\*Presented at the annual meeting of the Soo Surgical Association.



such a calamity and that we may be prepared to deal with, and to combat this condition. Only then can the surgeon attain that sense of confidence and security in this branch of surgery that is necessary for its further development.

That the mere loss of function of one lung, as may happen in unilateral pneumothorax, is not responsible for the respiratory distress alluded to, must be evident to every practitioner. He knows that complete one-sided serothorax, closed pneumothorax, consolidation of one lung, or partial consolidation of both lungs, as in single or double pneumonia, are entirely compatible with life and afford no serious discomfort as long as physical exertion does not take place. It is known that one-sixth of the lung tissue is sufficient to carry on life. There must be other causes leading to dyspnea and death.

Surgical experience, as well as physiological experiments, has proven, that the suddenness with which a pneumothorax is produced is a determining factor as to whether distress results or not. The slow accumulation of fluid in the thoracic cavity, as in serous effusion or empyema, causes no distress whatever. In my own experience the gradual and interrupted entrance of air into the pleural cavity during thoracotomy has never been followed by dyspnea or other dangerous symptoms. Garré's experiments have proven that unilateral pneumothoraces with narrow openings do not endanger life. Wide openings, considerably larger than the main bronchus, are apt to be followed by great respiratory and other disturbances. When a narrow opening exists, and during quiet breathing, the mediastinum remains in nearly a normal position, and the lung still takes part in respiration. Even during active or forced respiration, the negative intrathoracic pressure on that side is not entirely absent, provided the pleural opening is not larger than the diameter of the bronchus. The lung then expands and contracts regularly with each expiratory effort, although in a lesser degree.

When the opening into the pleura is large, negative intrathoracic pressure is lost, the lung collapses, and the mediastinal curtain is pushed over to the healthy side. With quiet respiration I have even then seen the affected lung expand and contract to a pronounced degree and take part in respiration. Active respiration however, when the opening is wide, is accompanied by wide oscillations of the mediastinal curtain and usually results in serious distress. For during in-

spiration of the healthy lung the mediastinum moves towards it, diminishes its intrathoracic pressure and lessens the intake of air. During expiration the mediastinum is pushed toward the other side and prevents the egress of air. Any circumstance that limits or prevents these wide expiratory and inspiratory excursions of the mediastinum will limit or entirely prevent serious results, even if a thoracotomy with a wide opening has been made. Thus a stabilized or rigid mediastinum, as is produced by inflammatory thickening as in empyema or a lung adherent to the costal pleura, prevents pulmonary collapse and holds the mediastinum more or less rigidly to the affected side. The mediastinum will not be able to oscillate widely or encroach upon the function of the healthy lung. Mediastinal fluttering then is of importance in producing severe dyspnea, although in itself it is probably insufficient to account for the cases of almost immediate death that occasionally occur in wideopen pneumothorax. To L. Rehn belongs the credit of explaining these accidents in a very plausible manner. He draws attention to the fact that during inspiration the diaphragm and the heart descend, and pull upon and make tense the mediastinal structure and large vessels. He agrees with other investigators and also blames the changed position of the mediastinum as causing the dyspnea, not in the sense, though, that it interferes with the various respiratory phases but because it serves to diminish the lumen of the bronchi leading to the healthy lung. There is, he asserts, a definite relationship of contact between the bronchi and the arteries. The main branches of the pulmonary artery wind around the larger bronchi in such a way that only the bronchus of the right apex is permitted to remain free. The aortic arch rests upon the left bronchus and the aorta itself is the most stationary of all the mediastinal structures. Now, we notice that during deep respiration in a wide-open pneumothorax, the mediastinum vigorously moves to the healthy side, causing a tightening of the mediastinal pleura. The fixed hilus of the lung cannot follow the trachea and bronchi in their motion to this side and a narrowing of the air tubes results, and with it diminished intake of air, severe dyspnea, and possibly death. This hypothesis explains the fact why right-sided pneumothorax is much oftener dangerous than the left-sided one. Thus it would appear that the displacement of the mediastinum is probably the main reason for the severe symptoms that



occasionally are found in pneumothorax, although still other factors may enter. Thus reflex irritation of the pleura produced by the inrush of air has been considered a cause, although its physiological explanation is not as yet complete. O. Bruns has approached the subject from a different angle and has shown that the total quantity of blood passing through both the healthy and the collapsed lung, is definitely smaller than under the normal condition, thus leading in the aggregate to deficient absorption of oxygen in the blood and to an accumulation of  $\text{CO}_2$  resulting in dyspnea. Very important also are the investigations of v. Speer regarding lung tension. Lung tension, or dilatation, is necessary to the proper filling of the auricles and heart. The moment the lung collapses, especially if it does so suddenly, the lung tension or elastic pull on the vessels and heart cease at once, the vessels and auricles collapse, and the amount of blood going through the heart is diminished, thus again predisposing to insufficient aëration and dyspnea, and aiding possible other disturbances, such as cardiac accident, when doing a thoracotomy. Bearing all this in mind the question arises what means and methods do we possess to ward off such possible calamities. Primary among these are the differential pressure cabinets of Sauerbruch, Willy Meyer, Brauer, and Engelkin, which are of unquestionable value. With their use thoracotomy can be done as safely as exploratory laparotomy. To these apparatuses and methods must be added Auer's and Meltzer's intratracheal insufflation, pharyngeal insufflation, positive pressure by the use of nitrous oxide and oxygen gas tanks, and other apparatuses that produce inflation of the collapsed lung at will. However, these apparatuses require expert handling and are at the disposal of but very few. The question is, Do we possess methods outside of those dependant upon the above-mentioned appliances that are at the disposal of everybody and are sufficiently safe in the hands of an experienced railway surgeon to justify him in doing an exploratory thoracotomy in serious injuries to the chest? I think we do. Bearing in mind that the violent flapping of the mediastinum must be prevented or minimized at all hazards, we resort to such expedient as would favor this result. Thus the placing of the patient on the side to be operated on permits the heart and mediastinum to gravitate to that side, putting the mediastinum on tension and minimizing mediastinal oscillation. The difficulty of operating

in this position is greatly diminished by having the afflicted side partly overhang the edge of the operating table. Local anesthesia is generally insufficient and contra-indicated when extensive exploration of the pleural cavity is desirable. Quiet even breathing, as in deep anesthesia, is essential, since violent active respiration leads to greater mediastinal excursions and initiates dyspnea, as shown by the experiments of Garré. Nitrous oxide oxygen anesthesia is preferable, as it affords the means of increasing intrapulmonary pressure, if this were desirable. My own cases all had ether anesthesia. Complete anesthesia is essential, for the breathing then is quiet and not agitated. The thoracotomy is best done through an incision in the sixth intercostal space, and the pleura opened very minutely allowing the pneumothorax to form gradually. Then the pleural opening is enlarged at will and the ribs spread so as to permit the introduction of the hand. Should dyspnea arise, Mueller's method of grabbing the collapsed lung with an instrument or with the hand and pulling it into the wound is very effective, thus pulling the mediastinum away from the healthy side and preventing its violent oscillations. To hold it there it may even be stitched to the pleura. Intrathoracic exploration is then made, conditions dealt with, and the incision closed without drainage. Before the last stitches are tightened an effort is made to partly or entirely overcome the pneumothorax. If nitrous oxide and oxygen is used a heavy stream of gas is turned on until the lung is completely inflated, when the last stitches are tied. If no such apparatus is at hand forcible compression of the chest wall and immediate closure will minimize the degree of pneumothorax. The remaining air is gradually absorbed in a few days.

Believing, as I do, that the dangers of thoracotomy have been greatly exaggerated I have no hesitancy in advocating exploratory thoracotomy in serious traumas of the thorax. In those instances where trouble does arise the dangerous dyspnea can be overcome by position and by Mueller's method of pulling the lung into the wound to prevent excessive action of the mediastinum. The shock and dyspnea accompanying extensive chest injuries is often severe and just because it is so profound, the dictum not to interfere with patients in shock is often too religiously followed. Shock may be due to a hemorrhage from a torn artery and will of course continue as long as the hemorrhage lasts. It

may be due to the constant irritation of the pleura when the sharp edge of a broken rib has pierced the lung. It may follow a pneumothorax from internal rupture of the lung, producing great intrathoracic tension, or may result from a diaphragmatic hernia due to the trauma. Corresponding injuries in the abdomen would be subject to exploratory laparotomy at once, and it would be considered the only legitimate treatment. In the thorax one hesitates for fear of an accident resulting from the pneumothorax, and thus, no doubt, often permits the patients to go from bad to worse. I can readily recall from my own practice a number of cases of severe chest injuries (in one case due to a kick of a horse, in another due to crushing in an auto wreck), where undue fear of causing pneumothorax prevented me from ligating two bleeding intercostal arteries or repairing a rent in the lower lobe of the lung, both cases terminating fatally in two and three days, respectively. The absurdity of such action was recently brought home to me by a case that came under the care of my colleague, Dr. V. A. Mason, who has kindly permitted me to relate the case.

P. F., a farmer, aged about 55, had fallen into a cellar, fracturing the sixth left rib in the midaxillary line. Because of sharply localized pains and dyspnea Dr. Mason suspected injuries to the lung, having in mind the possibility of the lung being pierced and hooked up upon a projecting spicule of rib. Being impressed with the apparent harmlessness of thoracotomy in several previous cases occurring in our Clinic, necessitating the opening of the pleural cavity, he resolved to do an exploratory thoracotomy. Under ether anesthesia the sixth rib was resected and a pneumothorax slowly allowed to take place. There was no respiratory distress whatever. The lung collapsed but partially, and respiratory movements of the lung continued uninterruptedly during the entire operation. The lung had not been injured, but there was a tear in the dome of the diaphragm about one inch in length, through which the omentum from the abdomen protruded to the size of a small egg. The omentum was easily pushed back, and the rent in the diaphragm closed with a catgut suture. The wound in the thorax was closed without drainage. No attention was paid to the pneumothorax, and subsequent repeated fluoroscopy revealed the fact that within five days the air had been absorbed from the thoracic cavity. Recovery was uneventful.

Another fear that often stays the hand of the surgeon when he considers the advisability of a thoracotomy is the apprehension concerning the possibility of pleural infection and empyema. The pleura, like the peritoneum, is quite able to overcome a certain amount of infection. Wieting has proven that the hemothorax, so often

permitted to absorb, is not always sterile. Even infected fluids, like pus, can disappear spontaneously. Of this I am convinced from actual experience. I state this, not that I should advise one to wait for absorption, but just to show the power of the pleura to successfully cope with infection.

When infection does occur the opportunity of treating it successfully is much more favorable in the chest than in the abdomen. With the aid of the fluoroscope we readily and very early can recognize an effusion. We can determine its nature by puncture, and, if infected, we can treat it by aspiration, lavage, or any method that we determine upon. Personally, I would favor repeated aspiration, or aspiration with lavage, of the pleural cavity with a sterile fluid or Carrel-Dakin solution. Early, but carefully graduated, respiratory exercise is an important adjunct in obtaining complete restoration of pulmonary function.

The physical difficulties of properly examining a case of severe chest injury are often considerable. The severe pain, the agitated and loud respiration, the desirability of auscultating front, back, and the sides of the chest, and the necessity of moving and disturbing the patient—all contribute to a possible failure or to an incomplete diagnosis. Even if these difficulties were not present a diagnosis as to what has happened in the thorax is often impossible. If *x*-ray examinations are negative and the condition is serious a thoracotomy is clearly indicated for purposes of intelligent treatment. No proper treatment could have been instituted in Dr. Mason's case without a thoracotomy. I have no doubt that, just as in the abdomen, exploratory thoracotomy, if more often performed, will uncover with increasing frequency conditions of the thorax heretofore unsuspected and yet entirely remediable.

It has not been my purpose to completely enumerate the various intrathoracic lesions occurring in serious chest injuries nor to fully outline their treatment, but merely to allude to some of those conditions that are liable to come under the care of the railway surgeon. I desire only to report our experience as to the harmlessness of thoracotomy and advise its more extensive application in all serious chest injuries.

## BIBLIOGRAPHY

1. Kuettner: *Der Traumatische Pneumothorax*. Chirurgische Operationslehre. Bier, 1921, vol II, page 405.
2. Eisendrath: *Injuries of the Chest in Civil Life and in War*. Chicago Surgical Clinics, June 1918, page 579.



3. Shattuck: Medical Aspects of Wounds of the Chest in War. *American Journal of Medical Sciences*, November, 1919, page 629.
4. Fowler & Mencken: Gunshot Wounds of the Chest. *Annals of Surgery*, March, 1920, page 257.
5. Yates: Possible Advances in Injuries of the Chest. *Annals of Surgery*, March, 1920, page 241.
6. Riggs: Diaphragmatic Hernia. *Annals of Surgery*, March, 1920, page 276.
7. Yates: Surgical Treatment of Pleurisy. *Annals of Surgery*, October, 1920, page 512.
8. Wieting: Weitere Erfahrungen auf dem Gebiete der Brustverletzungen. *Deutsche Med. Wochenschrift*, March, 1919, page 291.
9. Sauerbruch: Chirurgie des Thorax.
10. Graham: Importance of Vital Capacity in Thoracic Surgery. *Jour. of the A. M. A.*, October 9, 1920, page 992.

## DISCUSSION

DR. ARTHUR N. COLLINS (Duluth, Minn.): The thorax is one of the newer cavities of the body to be attacked by surgical procedure, and the half has not been told in regard to it. A surgeon can go into the pleural cavity, if he just realizes it, without half the danger he believed to exist, as is evidenced by the many recent reports in literature of cases carried to successful issue, and for so many different conditions.

I have looked up some of the statistics with regard to the subject presented by Dr. Doege, and I find that Garré, before reporting very much on this subject, studied 700 chest wounds. He found that the mortality under previous conservative treatment was in the neighborhood of 40 per cent. The wounds in the cases studied were produced by shot, puncture, and rupture of the lung. He cited the following reasons for the old conservatism:

1. Hesitation to operate on account of the poor condition of the patient.

2. Fear on the part of the surgeon of complete pneumothorax.

3. The possibility of recovery under conservative treatment in seemingly some bad cases. In the past many cases have gone on to recovery without surgical interference, and the possibility of the case coming to a successful conclusion without operation always comes in to influence the surgeon not to interfere.

The only early dangers in injuries to the thorax are, first, internal hemorrhage and asphyxia from pressure pneumothorax on the opposite or good side; and, second, the later danger of infection and sepsis. The practice has been to allow the case to run along until sepsis or hemothorax has occurred, then make puncture, and use surgery later as seems indicated. Garré has stated that early operation is short and that local anesthesia can be employed.

An injury to a bronchus with pressure pneumothorax demands operation on account of displacement of the mediastinum and kinking of the great vessels, as Dr. Doege has brought out. Technically, Garré feels that the thorax should be widely opened. In giving his experience in this matter, Garré believes that fixation of the lung in the wound, either temporarily or permanently, will forestall any possibility of collapse on account of pressure on the good side.

Garré and Kuettner favor the silk suture. They feel that broad surface wounds to the lung are best fixed in the thoracic wound and allowed to granulate.

The pleura is cleaned and the wound closed without drainage.

I have figured the cases that recovered in percentages:

9 bullet cases.....	6 recovered =	66 2/3 per cent
6 Puncture cases.....	5 recovered =	83 per cent
3 rupture cases.....	2 recovered =	66 2/3 per cent
25 extra puncture cases		
collected from other		
sources and re-		
viewed .....	16 recovered =	64 per cent

These cases with the percentage of recoveries give one an idea of what success is being had with this type of surgery.

I was very much interested in the case shown on the screen,—the little child with spontaneous pneumothorax. Fortunately, this does not occur very often. In my own experience I have never seen a case except the one which was reported at the St. Louis County Medical Society by my associate, Dr. Boyer. One evening he was called to a hotel and found a man about 28 years old on his hands and knees on the bed and breathing in a very eccentric manner. The patient stated he felt distress, his chest seemed to be very full, and there was gasping breathing, but no definite pain could be located. There was no fever or rapid respiration. Dr. Boyer examined him, then sat down, and asked questions. There was nothing in the history that would point to the cause of the condition, and no injury. He sent him to the hospital, where he made thorough examination. The history now developed an old attack of pleurisy. The next day, following stethoscopic examination, he made up his mind that the condition was pneumothorax, and this diagnosis was confirmed by the *x*-ray, which showed almost complete collapse of the right lung. That man had sustained no injury, and had been attending to his business during the day. It was a spontaneous affair, but what the causative factor was none of us knew.

I have had occasion to open up the chest for various reasons. During the past year I had a case in which it was necessary to take a piece of shrapnel under general anesthesia out of the root of the right lung. We made no attempt to change the patient's position, but left him right on his back on the fluoroscopic table. I resected about three and one-half inches of the fifth rib, made an incision through the posterior fascia underlying the periosteum, and went into the chest cavity. The assistants had been instructed as to just what they should do; one was placed at the light, another at the *x*-ray apparatus, and the surgical assistants, as usual, about the table. By means of a head-light, such as is used in throat work, we operated in the dark, the head-light illumining the chest cavity and with all other lights turned off. By this means the eyes become accustomed to the dark and the fluoroscope underneath. The head-light may be turned off at any time to use the fluoroscope. The forceps is carried down approximately to the foreign body with the aid of the fluoroscope. By moving the fluoroscope back and forth with the knee one can tell whether the shadow of the foreign body moves with the forceps. If not, the forceps is raised or lowered, and when it moves with the foreign body

we know we are at the same level. When we approximate as close as we can to the foreign body and clamp the forceps, then turn on the light, and we can dissect down toward the foreign body. This operation was done without collapse on the part of the patient. We removed the foreign body, and the patient made a very good recovery. In this case, instead of closing completely I put in a small drain. Later, the Carrel-Dakin treatment was used on account of a mild pleuritis.

DR. GEORGE M. CONSTANS (Donnybrook, N. D.): In 1917 I saw a case very similar to the one reported by Dr. Collins. Late in the afternoon a man came into the shower-bath room of the camp and fell prostrate while under the shower. When picked up he complained of pain in the right chest. He was transferred to the hospital, and it was found that he had complete pneumothorax on that side. He gave no history of injury, was apparently in good health, and the condition came on practically instantaneously.

DR. GEORGE F. THOMPSON (Chicago, Ill.): Four months ago I saw a case of double pneumothorax accidentally produced in a rather peculiar way. A patient with empyema was taken to the operating-room. The Doctor was scrubbing his hands when the nurse came in and asked which side it was on. He replied, "Put the patient on the right side." When he went in the patient was on the left side, the nurse having understood him to say that the empyema was on the right side. The patient was covered up with only a small area exposed. He incised over the lung, and just as he made liberal incision of the pleura he realized, from the slant of the ribs, that he was on the wrong side. Air immediately rushed in, and there was probably a complete pneumothorax. Suture was put in at once, after which there was considerable discussion as to what to do with the other side. An x-ray picture had been taken and he thought he had localized empyema on the other side. So he turned the patient over, made an incision on the opposite side, and opened the empyema. It was not localized, but a free empyema. There were no adhesions and there was practically almost complete pneumothorax. The patient was a little girl, and she had no trouble then or later with her double pneumothorax. That is the only case in which I have seen double pneumothorax produced.

In regard to spontaneous pneumothorax: We not infrequently see this condition. During the past three years we have had three cases of spontaneous pneumothorax, two of which recovered without trouble. One man had the ordinary symptoms and apparently was all right inside of a week. In another case of spontaneous pneumothorax it took the man a couple of months to recover. The third case was that type of spontaneous pneumothorax, which is usually considered to be due to tuberculosis, with rupture through the bronchus.

I have had no experience in removing foreign bodies from the lung or pleural cavity.

As to hemothorax: I have operated and ligated bleeding vessels, doing thoracotomy for that. One case was interesting. A blacksmith, a large, heavy

man, was kicked by a horse and was brought to Cook County Hospital, where it was discovered that he had a marked hemothorax. The interne immediately aspirated him, taking out, as I remember, something like a quart or more of blood. The result was that the man continued to bleed into the pleural cavity, and he went on in this way for four or five days. They again aspirated, and he bled again. We let him recover sufficiently from that, and then, a week or ten days later, aspirated a third time, and he recovered spontaneously, with much thickening of the pleura. This was probably one of those cases in which operative interference was unnecessary unless as a preliminary operation. Most of them when not aspirated too soon will progress very well, although there is always danger of infection even in cases of closed pneumothorax, and there is great danger of introducing infection.

DR. CONRAD E. NYSTRUM (Medford, Wis.): A few months ago I had a case in which a farmer had been gored by a bull on the left side of the chest, fracturing the 5th, 4th, and 3rd ribs. There was an opening in the chest wall about three inches in length, and the lung was compressed on the left side. I went to his home and advised him to come down to the hospital, but he did not want to do so, stating that he did not think he would live long enough. So I made up my mind to do what I could. We placed him on a table, and I found the heart beating right up into the wound. Under chloroform anesthesia I pressed the heart back and removed what little blood I could see in the pleural cavity. The man was 62 years old, and they told him he might die on the table. I had no fears of this, however. I sewed up the pleura, replaced the fragments of rib, and fixed them as well as I could, then sewed up the soft tissues and skin. At the time of the operation, with the nurse giving the anesthetic, I could not see that the chloroform had any effect on respiration. The patient died three to four days afterwards from septic pneumonia.

DR. VICTOR A. MASON (Marshfield, Wis.): In one case we removed a tumor which afterwards proved to be malignant, but in that case we resected portions of four ribs and had an immense exposure before we could get all the tumor away. There was no effect on the patient so far as the operation was concerned. Within two or three years we have opened the chest six or seven times, and no case showed any ill effect.

DR. DOEGE (closing): I wish to confirm my belief in the point mentioned by Dr. Collins regarding the process that probably takes place in the healing of pneumothorax.

The case of excessive pneumothorax the slide of which was shown, was seen by Dr. H. H. Milbee. There was an intense pressure in the thorax. Dr. Milbee assumed that there may have been a tuberculous focus in the lung and pleura, which had ruptured into the thoracic cavity, allowing air to escape at each respiration, and that at the time the lung was compressed sufficient healing had taken place, to effect closure of the pulmonary fistula. The patient went on to complete and uneventful recovery.



## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

MEETING OF NOVEMBER 14, 1923

DR. H. L. TAYLOR, M.D., Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 14, 1923, at 8 P. M.

Dr. Taylor appointed Drs. Christison, Burch and McCloud a committee to draw a suitable memorial for Dr. Warren A. Dennis, one of our past-presidents, who had passed away since the last meeting of the Academy.

The following case reports were given:

DR. HENRY ULRICH reported a case and showed x-ray film of a Charcot hip.

Case seen in consultation with Dr. John Sessions.

Patient was a man 35 years old, who began to limp and have some embarrassment of motion in left hip. Physical examination was negative so far as heart, lungs, etc., were concerned. X-ray of the hip showed a large tumor mass, and a diagnosis of sarcoma was made. Neurological examination proved it to be a case of tabes with Charcot hip.

The rarity of Charcot hip is the only reason for bringing this case before you.

DR. GEO. DOUGLAS HEAD reported the following case of pellagra:

The states of Wisconsin, Minnesota, and North and South Dakota are considered as a non-pellagrous area, no well-authenticated cases having been reported. This is in strange contrast to many of the southern states, such as South Carolina, with its 1,000 cases, and Georgia with 2,000 cases, as reported in the 1910 U. S. census.

The following case which I have to report, is of interest, first, because it developed in South Dakota and is the first case to be reported from that area, and secondly, because the patient had been deprived of meat proteins for about two years prior to the onset of the disease, and, thirdly, because of the prompt recovery upon a meat diet and the use of cacodylate of soda intravenously.

Mrs. Emil B. aged 50, married, three children, living at Mellette, S. D., was referred to me by Drs. Kleger and McCauley, March 29, 1923, complaining of nervousness, soreness of mouth, diarrhea, and a dirty-brown rash over the forearms and hands. Her family history was negative. One sister dead of goiter.

She had always been well until two years ago, when she had a lot of teeth extracted, after which she began to feel tired. At Christmas time of 1922 she was very nervous and felt as if she would go to pieces. This feeling of exhaustion increased and in March, 1923, her mouth became sore and red and hurt her when she chewed food. About this time she began having seven or eight loose stools a day, and her rectum pained and burned. At this time also the skin on the forearms, half way to the el-

bows, took on a dirty-brown, scaly appearance. The rash gradually extended to the back of the hands and fingers. About two weeks after the rash appeared, the skin began to crack about the wrists. She had no headaches, but was confused in her mind and slow in her speech and thought. Her eyesight became blurred. She could not concentrate her mind upon whatever she might be doing. The diarrhea had stopped about two weeks before the examination was made. She had lost in weight twenty-five pounds. She stated that she had lived in the town of Mellette, S. D., for the last forty years, that she had in no way changed her diet or mode of living until after the teeth were removed two years before, when she stopped eating meat and had eaten soft foods, such as milk toast, cream of wheat, potatoes, carrots, cabbage, bread and butter, cream, cooked fruits, grape-fruit, soft puddings, cake, and pie.

The examination revealed a fairly well-nourished woman of rather stocky build, brown hair and eyes. Her color was a pasty white, somewhat suggestive of myxedema, or possibly early pernicious anemia. Pupils reacted to light and accommodation. Knee-jerks were active. No incoördination. Her speech was slow, and her mental responses sluggish. The mucous membrane of the lips and gums and inside of the mouth and the tongue was fire red, as shown in the color plate. There was a fine, whitish exudate, like that accompanying the spirillum of Vincent infection over the roof of the mouth and the jaws. This was easily wiped off. In places the mucous membrane hung down in folds. A remarkable crusty, dirty-brown pigmentation and rash was present from about the middle of the forearms downward, extending over the backs of the hands and on the proximal parts of the fingers, as shown in the water-color drawings. On the inside of the wrist the skin was cracked and red in the crevices. The rash had a rough, raised feel and a bran-like exudate could be rubbed off. The rest of the body was free of this skin rash, except a scaly, brownish area, the size of a dollar, over the dorsal surface of the right foot. There was a scaly, dark-brown pigmentation and rash about the anus, and the mucous membrane of the rectum was red and angry looking. The rest of the physical examination was negative, except that there was some difference in the muscle strength in the extremities, the left arm and leg being stronger than the right. The urine findings were negative except a trace of albumin and an occasional narrow hyaline or granular cast. The blood findings showed a fairly high-grade, secondary anemia; hemoglobin, 65 per cent; red cells, 3,296,000; and leucocytes, 6,250. Differential count: p. m. n., 70.0; small monos., 19.5; large monos., 7.0; trans., 0.5; eosinos., 2.5; myelocytes, 0.5; no nucleated reds seen; no polychromatophilia; no basophilic stippling; no anisocytosis. Wassermann test, negative. Blood pressure, 132 systolic,

and 90 diastolic. Smears from the exudate upon the gums and roof of the mouth showed no spirilla of Vincent, but a long bacillus and diplococci.

A diagnosis of pellagra was made, and the patient was placed upon a liberal meat diet, with beef juice and daily intravenous injections of freshly made cacodylate of soda, two to five grains to the dose. She improved steadily, but slowly. She was dismissed from Abbott Hospital on May 21, less than two months after her admission, the dermatitis and pigmentation gone, the mucous membranes free of redness and irritation, the weakness and exhaustion much improved, and her anemia corrected to a large degree. A letter from her in July reports no recurrence of the rash or other symptoms.

Dr. Joseph Goldberger, of the United States Public Health Service, the recognized authority on pellagra in this country, and Dr. John Butler saw and examined the patient and the plates near the close of the treatment and pronounced the condition a case of true pellagra.

#### DISCUSSION

DR. J. G. CROSS: As Dr. Head has just said, the Northwest is not supposed to be a pellagrous area. There have been several well-authenticated cases of pellagra, however, in recent years which must have originated in the Northwest. Dr. Charles Granger diagnosed such a case in Rochester about five years ago which was reported in full in THE JOURNAL-LANCET. The outcome of this case I do not remember, but I believe the patient recovered. [Dr. Granger reported five cases in THE JOURNAL-LANCET for February 15, 1918, but only one of the five was said to have originated in Minnesota. The patient died.—THE EDITOR.]

Two years ago I saw a woman in Red Wing whose condition admitted of no question as to her being afflicted with pellagra. She was 52 years old and had lived her entire life in Idaho, with occasional visits to Minnesota. Up to four months before my examination of her she had been a strong, healthy woman, living in the pine country where her husband was foreman in a lumber-mill. An operation, four months before she was seen by me, for gall-bladder trouble had resulted in a normal convalescence and return to Idaho. She did not recover her normal strength; in fact, she became weaker and more somnolent. When seen a few days before her death she was supposed to have uremia. It was difficult to get any reply from her, although she was attentive and seemed to understand when questioned. There was no coma, no pain. The typical pigmentation of the hands and forearms was present, as were also large purpuric spots on the thighs, arms, and chest. The history was typical. No autopsy was obtained.

Dr. Head has spoken of the possibility of other dietetic factors, as, for instance, a lack of protein. The case above stated, of course, during her convalescence was on a very limited diet for some time. The interesting thing to me is that she had never been south of our latitude.

DR. W. A. JONES: I recall a patient who came under my observation two years ago. She came from Indianapolis, and was brought to the hospital

suffering from protracted diarrhea, excoriation, which covered the buttocks and surrounded the anus, discoloration of the skin which was fairly well marked and characteristic, and a peculiar mental state, a dementia, which, I believe, is quite common in pellagra. I gave her hypodermics of emetin, put her on a proper diet, and she made a recovery from the pellagra and the mental condition. One interesting point was that she was a morphinist before the pellagra developed. The emetin was given for its psychological effect, as well as for its effect upon the diarrhea.

DR. HEAD: I think that Dr. C. E. McCauley, of Aberdeen, made a tentative diagnosis of pellagra before this case was sent down, and our studies were really only confirmatory of the diagnosis which he had made.

I was very glad, indeed, that we were able to get the opinion of Dr. Goldberger because he had stated when he was here that he was doubtful about our having pellagra in this part of the country, and one of the cases which he had come on here to see (a case from Duluth, which Dr. Butler had seen) he had pronounced a non-pellagrous case. This case he did not hesitate in pronouncing pellagra after talking with the woman and seeing these plates and getting her history.

DR. MANN: Did Dr. Goldberger say anything about the cause of it?

DR. HEAD: Dr. Goldberger talked very freely about the research findings which had been carried on under his direction in the South, and he is firmly of the opinion that an alien protein, or the absence of certain proteins in the food, have considerable to do with the disease. He does not think that the older conception (abnormal products in the corn) are causal factors. He believes there are many proteins that may act in a causative way to produce it.

DR. PAUL COOK: I just want to say that there is a typical case of pellagra in the Aberdeen Veteran's Hospital, in St. Paul; at least the case was there three or four weeks ago. This case is of a severe pellagra-typhosus type, with gauntlet-like dermatitis.

DR. E. L. GARDNER read a paper entitled "Hypothyroidism, with Special Reference to Minor Thyroid Deficiencies." (See page 1.)

#### DISCUSSION

DR. L. C. BACON: This excellent paper is so exhaustive and covers so completely the subject that the only discussion which seems proper is to speak of a case of myxedema which I have been able to follow for over thirty years, because it emphasizes some of the points of the paper.

I saw her first during the early '90's, she was 37 years of age, with the history that she had borne five children; and at 33 years of age she passed the menopause. Her husband told me that earlier in life she had been of a happy disposition, but when the menopause came she became "dull and foolish." She was a large woman with puffed face, eyelids and lips especially so. The skin was pitted, lips and



gums bluish, hair dry, thin and short, and her expression and actions denoted stupidity and lack of vigor. Constipation was obstinate and she complained of a constant dull headache.

About this time I had been reading, in the London LANCET, the report of the British Commission to investigate myxedema, and I considered this a case of the disease in question. I obtained fresh sheep's thyroids from South St. Paul and had the patient eat them. The improvement was immediate and marked, and in about four months there was a restoration of the menstrual function, which continued until the late forties. She is a little past seventy now and is happy and hearty for her age.

Some months after I first saw her, thyroid extract came on the market, and she has used it in tablet form since. During the first few years of the use of the thyroid extract, when she would reach a point of feeling very well she would discontinue the remedy and would soon become very constipated, and her dull headache would reappear, or if she were taking the tablets and the headache and constipation appeared it would be a warning that that particular lot of tablets was inert, and fresh would be obtained. Sharp headaches with rapid heart action would warn her that she was taking too much of the extract, and the amount would be reduced. After she understood that she must accept a life sentence and took the extract regularly she remained in good condition, and she has enjoyed a happy, cheerful life. She finds that one-half of a five-grain tablet twice a week about meets her needs.

About five or six years ago I did a cholecystectomy on this patient and she did very well, the wound healing promptly, but about two weeks after the operation the scar became red and infected, and suppuration occurred. The thyroid had

been overlooked during the period, but when exhibited again, healing was prompt and satisfactory.

DR. H. L. ULRICH: I think Dr. Gardner has shown us very beautifully the variation of the potency of the commercial extracts we have on the market. The basal metabolic rate determinations show the importance of this point, that one must have active extracts to get therapeutic results. There are a good many clinicians who scout these mild types of hypothyroid states. Those of us who are on the lookout for these are convinced that there is such a condition, particularly after the fourth decade of life. In regard to the heart: There is no question in my mind that there is such a thing as a myxedema heart and that these hearts are going about with the diagnoses of myocarditis, valvulitis, etc., whereas there are purely functional changes in the hearts. In hypothyroidism the general muscular tone of the body is depressed, and so likewise the tone of the heart is depressed. If you examine these patients with the x-ray you find their hearts hang way down in the chest like a drop-heart. We have just had such a case in the hospital with all the signs of hypothyroidism. There was a blocking in the Q. R. S. complex in the electrocardiogram, and this patient had been diagnosed a myocarditis. Under medication of thyroid the insufficiency of the heart has disappeared, she has regained a normal electrocardiogram, and all the other symptoms have disappeared.

DR. W. P. LARSON gave a paper entitled "The Problem of Wetting Bacteria." There was no discussion of this paper.

JOHN E. HYNES, M.D.  
Secretary,

## THE CLINICAL LABORATORY: VII. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL, MINNESOTA

### (b) *Microscopical Examination.*—

When any group of body tissues undergoes destruction, certain changes may occur, not only in the chemical composition of the blood, but also in its morphological constituents. This is readily understood, as the blood represents a tissue which is common to all of the organs of the body. The blood serves not only as a circulating medium, through which restorative substances are carried over the body and waste products eliminated, but it also performs certain physiological functions which are of the greatest importance.

The combination of oxygen with tissue cells is necessary for the continuation of life. The

supply of oxygen is brought to the tissue cells by the red corpuscles under normal conditions in sufficient amounts so that the complex structure of the tissue cells may be broken down and the liberation of energy take place. For the supply of oxygen the body is dependent, of course, upon the red blood corpuscles.

The above serves as only one illustration of the important physiological functions maintained by the blood.

Many possible pathological conditions may be manifested by changes in the various cellular structures of the blood. It may be stated that the various abnormal findings which may be presented as a result of the microscopic study of specimens of blood are usually clearly in-

\*This is the seventh of a series of articles by Dr. King on the Clinical Laboratory.

dicative of certain pathologic changes in some tissue group or groups of organs.

#### RED BLOOD CELL COUNT

The average number of red corpuscles in the normal individual is usually accepted as 5,000,000 per c.m. for the adult male and 4,500,000 per c.m. for the adult female. These numbers are subject to considerable variation. A count which runs 3,500,000 to 4,000,000 per c.m. when considered with other factors, may be regarded as abnormally low. At the same time such a count may be assumed as normal, providing other blood findings and clinical conditions are normal. Frequently a red cell count of over 5,000,000 to 6,000,000 per c.m. may be obtained. An increased number of red cells appears when the individual changes to a higher altitude.

In the new-born child the red cells usually reach 6,000,000 or 7,000,000 per c.m. or over. During the nursing period the number of red cells gradually decreases, which continues until about the tenth year. Therefore, during the period of early childhood, a red cell count of from 4,000,000 to 5,000,000 per c.m. should be regarded as an indication of anemia.

Variation in the number of red cells in disease may occur as follows: *Oligocythemia*, or a diminution in the number of red blood cells, is found in pernicious anemia, chlorosis, secondary anemias, and the leukemias. *Polycythemia*, or an increase in the number of red blood cells, is found as a transitory condition after the loss of considerable body fluid, as in persistent vomiting and in conditions attended with severe diarrhea, and as a permanent condition in certain forms of disease of the heart, including adherent pericardium and disease of the mitral valve, also in empyema, pneumonia, and certain forms of poisoning chiefly those due to phosphorus and acetanilide.

#### THE LEUCOCYTE COUNT

The estimation of the number of leucocytes is one of the oldest routine procedures in the examination of the blood. Very often in the course of given diseases the presence or absence of active suppurative foci, and other prognostic signs can be gathered from the enumeration of the white blood cells. *Leucocytosis*, or an increase above the normal number of leucocytes, may be classified as physiologic and pathologic leucocytosis. The normal leucocyte count for adults is accepted as from 5,000 to 10,000 per c.m. In a new-born child the leucocytes usually run from 15,000 to 20,000 per c.m.

After the first or second week of age, the number of leucocytes may vary from 10,000 to 15,000 per c.m. This count extends through the first few years of childhood. It is important, therefore, to keep in mind that in taking specimens of blood from a child, a higher normal leucocyte content is found. In the study of adult blood, if the count is below 5,000 a leukopenia is regarded as present, while a count above 10,000 or 11,000 is accepted as a leukocytosis.

*Physiologic* leukocytosis may be found during digestion, after cold baths, frequent exercises, and during pregnancy; therefore, it is important that these facts be kept in mind. Blood specimens should not be taken immediately after a hearty meal.

*Pathologic* leukocytosis is present in many infectious processes. Ordinarily the term leukocytosis refers to an increase in the polymorphonuclear leucocytes. The polymorphonuclear leucocyte is found in increased numbers during most inflammatory processes and in all inflammatory conditions in which suppuration is present. Pathologic leukocytosis will be taken up more in detail under the consideration of the various forms of leukocytes.

#### BLOOD PLATELETS

The normal blood platelet count usually ranges from 225,000 to 350,000 per c.m. It is stated that in normal individuals a fairly constant count may be obtained. While the origin and structure of blood platelets, or *thrombocytes*, are not thoroughly understood, it is possible that they may represent elements derived from the leucocytes or plasma. There seems to be no constant relation between the leucocyte count and the platelet count.

The blood plates are increased in most chronic diseases, like tuberculosis and syphilis. They are also increased during fevers. During the decline of a fever, the blood platelets decrease in number. The number of blood plates is relatively low in pernicious anemia, secondary anemia and lymphatic leukemia. In myelogenous leukemia the platelet count may run as high as 800,000 per c.m.

Much additional study should be devoted to blood platelets, their number, and the significance of decrease or increase in number. Zeller\* finds considerable difference in the number of blood plates, in various pathological conditions.

Rees and Ecker report an improved method for counting blood platelets.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

JANUARY 1, 1924

## A FURTHER EFFORT TO ELIMINATE QUACKERY

The recent exposé of the diploma mills has started a general discussion as to whether these mills are all located in Missouri or whether they are scattered all over the United States. The supposition is that there are more than two or three places where diplomas can be purchased. Then, too, the Executive Committee of the American Medical Association has determined to assist in every possible manner the extermination of the medical quack, and is urging the various states to search out and prosecute men practicing medicine without a license. This effort is to be commended, but there are doubtless many states like Minnesota that hesitate, through their boards of examiners, to prosecute men who are disqualified or unqualified to practice medicine and the main difficulty is the lack of funds for this purpose. The further difficulty is in getting the county attorney sufficiently interested to go after the man who is seemingly quiet, and yet is doing a lot of harm in the practice of medicine. He can go after an abortionist without any trouble and without any delay, but the man who is dilly-dallying in medicine and who at heart is a quack is the man he hesitates to prosecute. There are a number of graduates from minor schools having low standards, but these schools are limited to five while those that are in the Class A list, at the highest, or Class B list, of sufficient importance, number seventy-

six. Someone has suggested (probably has estimated) that there are 25,000 medical imposters or poorly qualified physicians, but the number is vastly overstated, and it probably is very much less, unless we count in the various cults which are on the borderline in the practice of medicine. Some of these stubborn cults are still doing a great deal of damage, particularly the so-called religious cults. It is very difficult to either investigate their methods or to prosecute them because of the feeling that it is their religion. Only very recently a case has been brought to the attention of the public and the City Health Department, that of a child suffering from itch. This child has been under the care of a non-medical healer for four or five months, and quite naturally has been excluded from the public schools. The Health Department finally investigated it, and are positive that the child has itch; and it is quite likely that some other members of the family have been infected by scabies. The child was recently seen by a specialist who declared it a curable case in spite of the fact that it had been neglected and untreated because of a religious belief. It seems the case has now come into court, and is likely to stir up quite a bit of controversy, which may do the public good if the newspapers will only print the facts and not call it a persecution of a religious sect.

Another case has also recently come up, where a child was denied the services of a physician until within two or three hours of its death. This is a common practice among members of a certain religious-healing sect. They maintain that there is no illness, that there is no cause for alarm, and they go on treating a disease, frequently of a communicable type, and then at the approach of death they call in a physician to save themselves from a coroner's inquiry. It is rather singular that people of supposed intelligence will permit this sort of thing, but they do, and they probably will do so until enough of the family is exterminated by disease so that they will eventually be brought to their senses and employ a physician. The world is still bigoted, the cults are defiant, and the doctor is still ridiculed, lied about, sworn at, knocked, cussed, and beaten, and the only reason he is still here is that he wants to see "what-in-hell's" going to happen next! He is a brave man as a rule. He does not often show himself a slacker, and he is still endeavoring to do his best for humanity. He makes all sorts of allowances for the whims and idiosyncrasies of the people,

he puts up with the claims of untalented, smoothes over many of the family problems, and goes on in the earnest practice of medicine.

It will take a long time to get rid of these quacks, even if all the States join in the effort to exterminate them. The people still like to be humbugged and Barnum knew what he was talking about when he was in the show business. But the most degrading situation in the selling of diplomas is the fact that a man will prostitute himself for pay, and go before the examining board, pass his examination under an assumed name, and then turn the purchased diploma over to a man who is a born quack.

#### ANOTHER VIEWPOINT OF THE MEDICAL EXPERT

The following is a letter sent us by a man who is frequently called upon as an expert in court, in order that the medical profession may see that, occasionally, the expert's evidence is appreciated. This occurs so rarely we are presenting the letter:

Editor of THE JOURNAL-LANCET.  
Dear Doctor:

I have had occasion to be in court five times during the past two weeks, once for the plaintiff and four times for the defendant. These were all fairly important cases, and in each case a number of medical experts were on hand both "for and agin." In four of these cases, the first medical testimony given was accepted by both sides without question as a fair and impartial statement of the medical facts and findings, and in the other case the medical testimony varied so little that it was a waste of time and effort in repetition. In one of these cases, one of the attorneys openly addressed the court and jury and complimented the attending surgeon in the case that his testimony was accepted without question, and that all the experts in this large case had agreed both in the treatment of the case and in the statement of the final result. He said further, "I consider this a distinct compliment to the medical profession."

It occurs to me that this is one answer to the anxiety shown by our profession because of the apparent or real loss of public confidence as expressed recently in one of your editorials. Here was a real lesson to the public that doctors can sometimes agree in findings, diagnosis, and prognosis, and are not influenced by any other motives than to speak the truth when called into court.

The best propaganda, in my judgment, for the restoration of public confidence in the medical profession, consists of our works and not our protestations.

Yours truly,

Anything that will assist the medical expert to present uniformly satisfactory testimony is worth while, and any encouragement from the

bench or the attorneys, or the jury, should be likewise accepted with gratitude.

The general impression still prevails that the medical man can be bought for a price, and that he will testify to anything that his attorney is trying to prove. The above letter shows the exceptional case.

It is necessary, too, that the attorney for either side in court should at least try to bring out the whole substance of what is in controversy; and yet we medical men are frequently told that the legal questions are much more important than the medical question; hence the attorney can often confuse the expert and the jury by his camouflage of the question under dispute, or he can simply talk and confuse the jury by dwelling upon something that has really nothing to do with the case.

A further reason for printing this letter is that it may inspire some other doctor to be honest and trustworthy and may encourage him to present his expert testimony without exaggeration or in any way attempting to cloud the issue, and to be fair, outspoken, and outright; and when that is done the medical expert will stand in a much better light before the court and the jury.

#### THE ELECTRON THEORY

The electron theory, or, as it is called, the corpuscular theory, is the very ingenious theory upon which the Abrams treatment was founded, the physical theory that the atoms of the body are composite systems consisting, in part, at least, of corpuscles of a still higher order of minuteness. The theory has heretofore concerned itself mainly with the study of one special form of corpuscle which is exceedingly prominent in subatomic phenomena, and which appears to constitute a sort of basic and omnipresent structural element in the architecture of material atoms of all kinds, inasmuch as it has identically the same properties in every respect, whatever the kind of matter from which it is obtained. (So says the *Americana*.)

Now, if we go on to investigate this theory we find that each corpuscle carries a certain definite and constant charge of negative electricity; and, again, this applies to any kind of matter. Many authorities believe that the corpuscles are, in fact, like isolated, disembodied electric charges. An atom is supposed to consist of a certain number of these negative corpuscles, associated in some definite way with a positive electrified nucleus; consequently the nucleus and



the cell itself of a corpuscle neutralize the effect of the positive electrification.

One might go on and add to this theory by dividing it again into smaller bodies or corpuscles and yet not arrive at the foundation of what the electron theory covers except as one studies it, or imagines it, more likely; and thus any sort of a theory may be attributed to electronic action.

Many of the world's greatest men have studied this theory, among them Millikan, Stoney, Lord Kelvin (although he substitutes the term *electron* for *electron*), and J. J. Thompson, as well as numerous others. It is not new, but is very old. Crookes had much to do with the development of a theory which is called the "charged-particle theory," and which is more or less involved in the activity of the Crookes' tubes. Röntgen, in the study of this same theory, evolved the *x*-rays. But to indicate all of the bearings and relations of the electron theory to this world's activities would require a large volume of reading matter, consequently it is impossible to do anything but refer to it in a very superficial manner. And yet all of these men who are investigating electrical responses, reactions, and combinations are still uncertain as to its value. However, we have before us, according to the newspaper accounts, men who are meeting and forming what is known as "The Middle States Society of Electronic Medicine," and their theory is that "electric leakage" from normal tissue cells is the cause of all disease; and to cure this disease the cells must be insulated or recharged in order to restore the missing electrons. The quotation goes on to state that British army surgeons during the war had successfully insulated wounds with paraffin! What relation this bears to the electron theory is for one of the great minds to explain. Here is evidently the basis upon which Abrams has brought his theory into such prominence.

We also are told that this electron theory is very closely associated with the molecular theory, radiation, and radio-activity; and, although it seems as if this subject were almost impossible to elucidate, some of our ordinarily educated men are using it for the advancement of science. It may be just as good as some of our medical theories, but it is more mysterious than pathology or chemistry, or many of the ideas which are combed out of the minds of the commercialists. It will not be long before the electron theory will be a household word and will be transmitted

at the various radio stations, and the whole world will soon have as much knowledge of what this radio-activity theory is as those who are promulgating it—they won't know any more about it than they do now.

The lesson of this short tale is to study medicine, medical science, from a rational and sensible point of view, and get down to the basis of things that are sensible, simple, and health-giving without wandering into the maze of theories which are so confusing and so unsatisfactory, and yet seem to carry great weight with immature minds.

## BOOK NOTICES

**EXCURSIONS INTO SURGICAL SUBJECTS.** By John B. Deaver, M.D., Emeritus Professor of Surgery, University of Pennsylvania; Surgeon-in-chief, Lankenau Hospital, Philadelphia; and Stanley P. Rieman, M.D., Assistant Professor of Experimental Pathology, University of Pennsylvania; Chief of the Department of Pathology and Bacteriology, Lankenau Hospital, Philadelphia. Octavo volume of 188 pages and 30 illustrations. Philadelphia and London: W. B. Saunders Company, 1923. Cloth, \$4.50 net.

"Excursions into surgical subjects" is certainly an appropriate title because these sketches are not only short, like excursions in the true sense of the word, but afford a great deal of pleasure to the reader. The essays of Deaver and Reimann are snappy, full of information, well worded, and appeal to the imagination of the reader. Everyone in the profession, whether it be the junior medical student or the venerable professor of medicine or surgery, will have plenty of food for thought.

The clinical discussions are confined to lesions in the abdominal cavity. The discussion on peptic ulcer consumes over one-third of the volume. Dr. Deaver developed the subject on peptic ulcer in an excellent manner. He takes up the historical development of our knowledge on peptic ulcer, and gives a well-constructed résumé of the clinical findings in ulcer. He discusses the treatment in detail, and gives his personal reasons for choice of one or another type of surgical procedure. Throughout the chapter, and in fact throughout the book, one feels the personality of the authors well portrayed. The discussions are pregnant with suggestions for further work on topics which are still unsettled. The volume is truly written, "to stimulate continued inquiry and investigation in the byways of surgery, and thus open up and develop new paths which may perhaps become land marks for future travelers."

The pathologic aspects are discussed by Dr. Reimann. The problems brought forth are in connection with "living pathology," in other words morbid physiology. Reimann is also full of suggestions for future work on many problems, such as the cause of injury to gastric or duodenal mucosa,

the etiology of gastric carcinoma, the function of the gall-bladder, the mechanism of the opening and closure of the papilla of Vater, etc.

Under the heading of "Jaundice" Deaver dilates on the etiology of jaundice, and takes up Hanot's cirrhosis, which he calls "probably the final stage of Banti's disease." He discusses splenectomy and gives his technic for the operation. This chapter takes up, in a round-about manner, topics related to jaundice, and is concluded as follows: "So we have travelled a rather circuitous route from jaundice to splenectomy, we have in reality, not deviated so much as at first glance would seem evident."

The chapter on "Diseases of the Bile Tract" covers thirty-two pages of very interesting reading. Deaver discusses the most recent work on cholecystitis and includes a discussion on the work of Evarts Graham and his associates. He gives a strong plea for cholecystectomy on the basis of these recent findings. He discusses the clinical aspects of biliary tract disease and gives an excellent grouping of the symptomatology. The relation of pancreatic disease to cholecystitis is discussed and the experimental findings of Reimann in this connection are interesting and of great value.

The chapter on the trials, tribulations, and joys of a surgeon is full of suggestions for avoiding many sad experiences. Moynihan's "the ritual of an operation" is discussed in some detail. A strong plea is made for closer co-operation between the internist and the surgeon.

The discussion on surgical conditions of the intestinal tract is limited to inflammatory lesions, malignancy, and tuberculosis. Deaver takes advantage of this opportunity and brings a formidable attack on the appendix. "It would be quite unnatural," he says, "and contrary to the habits of my surgical life were I to miss an opportunity to have a dig, if only in a figurative sense, at that inoffensive-looking organ, which is so deceptive and potentially harmful, and which, excepting the tonsils, has become the most frequent sacrificial offering of the human body to the god of prophylaxis."

Pasteur is given a great tribute for his researches, which revolutionized medicine, chemistry, physics, and agriculture. The chapter on medical education is written as a plea for the production of more practical physicians. Research is regarded as a speciality by Deaver, and, according to him, should have a place in the curriculum of the postgraduate school of medicine. Under the title "Living Pathology" the author tries to emphasize the importance of the presence at the operating-table, not only of the internist, but also of the pathologist. Many strong arguments are produced to support this view point.

—MINAS JOANNIDES, M. D.

**LEGAL MEDICINE AND TOXICOLOGY.** Edited by Frederick Peterson, M.D., Manager Craig Colony for Epileptics; and Walter S. Haines, M.D., late Professor of Chemistry, *Materia Medica and Toxicology*, Rush Medical College; Second Edition. Two octavo volumes, 2,268 pages; 334 illustrations, including 10 insets in colors. Philadelphia and London: W. B. Saunders Company, 1923.

The recently graduated medical practitioner often

feels handicapped to cope with situations that have a scope beyond the consultation room or bedside. His own right and obligations under the law and the state's interests must receive his considerations. These two volumes treat particularly the diseases that bring the physician in close relationship with the state and its laws.

Volume I contains discourses on conditions and diseases of particular interest to the clinical man, while Volume II is devoted to toxicology and positions of legal medicine, in which laboratory investigation is an essential feature. Forty-two investigators and clinicians contribute to the entire text.

The majority of contributions are quite comprehensive. As an example, the subject, "Mental Disorders in Medicolegal Relations" is worthy for reference as a concise yet adequate reference to the busy general practitioner. "Legal Medicine and Toxicology" is essentially practical, and should prove a worth-while addition to the doctors bookshelf.

—J. C. MICHAEL, M.D.

**Collected Papers of the Mayo Clinic, Rochester, Minnesota, Volume XLV, 1922.** Edited by Mrs. M. H. Mellish. Cloth. Price \$13 net. Pp. 1,394, with 488 illustrations. Philadelphia: W. B. Saunders Company, 1923.

A volume of 1,346 pages. Many interesting articles appear pertaining to the alimentary tract, urogenital organs, ductless glands, blood and circulatory organs, skin and syphilis, head, trunk, and extremities, brain and spinal cord and nerves, organic and physiologic chemistry, miscellaneous articles relative to basal metabolism; x-ray from the standpoint of diagnosis and treatment; pathology; diabetes. Technic with special reference to well-illustrated articles on transverse nerveblock anesthesia in surgery of pelvic floor and viscera; and the use of paravertebral nerve block anesthesia in general surgery.

There are numerous x-ray cuts illustrating lesions in kidneys and ureters, in lungs, in colon, and in stomach. Operative technic is well illustrated by many diagnosis. The volume describes the latest methods relative to pathology, diagnosis, and treatment.

—E. D. SIMPSON, M.D.

**Surgical Clinics of North America.** August, 1923. Vol. 3, Number 4. Chicago Number. Published Bimonthly by W. B. Saunders Company, Philadelphia and London. Price per year, \$12.00.

This issue gives a sufficient range of subjects to attract the most specialized surgeon, with a few of the rarities, such as pancreatic cyst, actinomycosis of the kidney, endothelioma of the meninges, and perhaps mixed tumour of the parotid there are the more common surgical conditions of the gall-bladder, kidney, stomach, bowel and bladder. A compression operation for pulmonary tuberculosis, transpleural drainage of subphrenic abscess, orthopedic procedures, and vaginal hysterectomy for fibroids complete the list.

Many of the articles are accompanied by illustrations; especially good are those depicting paravertebral anesthesia, gall-bladder, and kidney technic.

—J. H. SIMONS, M.D.



TEXT-BOOK OF THERAPEUTICS INCLUDING THE ESSENTIALS OF PHARMACOLOGY AND MATERIA MEDICA. By A. A. Stevens, M.D., Professor of Applied Therapeutics, University of Pennsylvania, Philadelphia. Sixth edition, entirely reset. Octavo of 793 pages. Philadelphia and London: W. B. Saunders Company, 1923. Cloth. \$6.25 net.

This book is very well and clearly written. All drugs are described in detail and are classified according to their pharmacologic action and use. Many drugs that have come into use in the last few years are described for the first time. Among these are benzyl benzoate, thromboplastin, emetin, acid sodium phosphate, yeast, luminal, atophan, scarlet red, acriflavin, and quinidin.

Practical applications of drugs are clearly indicated. It contains also a useful chapter on electricity, hydrotherapy, massage and actinotherapy.

The section on applied therapeutics takes up diseases in their order and outlines in detail their management by drugs, diet, hygienic, and physical measures.

This volume should be of great service to the student as a text-book and to the practitioner as a reference work.

—A. A. WOHLRABE, M.D.

## NEWS ITEMS

Dr. V. S. Irvine, of Lankin, N. D., has moved to Park River, N. D.

Dr. F. F. Lang has moved from Lansford, N. D., to Danville, Ill.

Dr. F. M. Baldwin has moved from Redfield, S. D., to Los Angeles, Calif.

Dr. A. S. Nicholson has moved from Williston, N. D., to Glasgow, Mont.

Dr. Trygve Oftedal, formerly of Fargo, N. D., and late of Minneapolis, has located in Conde, S. D.

The new Nurses' Home of St. Francis' Hospital of Breckenridge was opened with interesting ceremonies last month.

Dr. A. T. Bigelow, a veteran of the Civil War, who practiced medicine in St. Paul in early days, died in Florida last month.

Major L. L. Ten Brock, of the U. S. Medical Reserve Corps, has been assigned to the Seventh Corps with headquarters in Minneapolis.

Dr. H. J. Skelton, of Spencer, Neb., a part of whose practice was across the state line in South Dakota, died last month at the age of 56.

Dr. A. E. Wilcox, of Minneapolis, read a paper on "Fractures" at the annual meeting of the Douglas County Medical Society last month.

Dr. J. S. Whitson, of Streeter, N. D., has purchased the practice of Dr. A. J. Ostrander, of Enderlin, N. D. Dr. Ostrander has moved to Eugene, Oregon.

Dr. D. Edmund Smith, of Minneapolis, died on December 15th at the age of 56. Dr. Smith graduated from Rush Medical in the class of '94, and began practice in Minneapolis the next year.

The medical practice acts of Minnesota and the Dakotas have proven a barrier to men seeking licenses here on diplomas from the fake and the low-grade medical schools of Kansas and Missouri.

The City of Minneapolis will soon take action to protect physicians in case damage suits are brought against them while they are engaged in free work for the City in City hospitals and other institutions.

Major J. F. Presnell, of the U. S. Army Medical Corps, now located at Carlisle, Penn., has been ordered to the Northwest as inspector of the National Guard units in Minnesota, North and South Dakota.

Dr. A. A. Whittemore, State Health Officer of North Dakota, has designated February 8, as physical inspection day for the public school pupils of North Dakota. Teachers and county nurses will conduct the work on that day.

Twenty-two of the students who graduated from the Medical School of the University of Minnesota last month, have been awarded fellowships by the Mayo Foundation and will go to Rochester for graduate study and research work.

The Oconomowoc Health Resort of Oconomowoc, Wisconsin, has opened a department of occupational therapy for its patients. A new building has been instructed and equipped for this purpose and women teachers have been appointed.

Drs. W. G. Brown and G. A. Carpenter, of Fargo, N. D., spoke before the Commons Club of that city at the Club's monthly dinner last month. The former spoke on leprosy and the latter on diabetes, especially on the modern treatment of these diseases.

Dr. Roy M. Wheeler has disposed of his interest in the Hot Springs (S. D.) Clinic, and will spend the winter in Chicago in the further study of radiology, in which line he has special-

ized for several years. He expects to return to the Northwest and locate here.

The Cass County Medical Association held its annual meeting in Fargo, N. D., December 21. After the program the following officers for the current year were elected: President, Dr. Kent Darrow; vice-president, Dr. J. J. Heimark; secretary-treasurer, Dr. G. A. Larson, all of Fargo.

The Watonwan County Medical Society elected the following officers at its annual meeting held at Madelia last month: President, Dr. F. L. Bregel, St. James; vice-president, Dr. O. E. Hagen, Butterfield; secretary-treasurer, Dr. H. B. Grimes, Madelia; delegate, Dr. O. H. Ternstrom, St. James.

The Steele County Medical Society held its annual meeting in Owatonna last month, when the following officers were elected for 1924: President, Dr. F. M. Smersh, Owatonna; vice-president, Dr. Benedict Melby, Blooming Prairie; secretary, Dr. A. B. Hart, Owatonna; treasurer, Dr. F. M. Smersh, Owatonna.

The Northwestern Hospital of Minneapolis will start a drive next week to raise \$500,000 with which to enlarge its building. This "drive" and the one on in St. Paul to raise \$1,000,000 for a new building for the Baptist hospital plant of that city, will do much to encourage other Northwestern cities to meet their hospital needs.

At the annual meeting of the North Central Branch of the American Urological Association, held in Minneapolis and St. Paul on December 17 and 18, the following officers were elected for 1924: President, Dr. Gilbert J. Thomas, Minneapolis; vice-president, Dr. W. F. Braasch, Rochester; secretary-treasurer, Dr. J. L. Crenshaw, Rochester.

Dr. James A. Quinn, of St. Paul, died the day after Christmas at the age of 67. Dr. Quinn graduated from Columbia, with the class of '80, and soon afterwards came to St. Paul, where he has practiced since that date. He was the chief surgeon of the Great Northern Railway Company for many years and was coroner of Ramsey County (St. Paul) for three terms.

At the annual meeting of the Sioux Falls (S. D.) District Medical Society the following officers were elected for the current year: President, Dr. S. A. Keller, Sioux Falls; vice-president, Dr. P. R. Billingsley, Sioux Falls; secretary-treasurer, Dr. D. R. Gregory, Sioux Falls; member of board of censors, Dr. F. I. Putnam,

Sioux Falls; delegates, Dr. S. A. Donahoe, Dr. S. A. Keller, and Dr. J. G. Parsons, all of Sioux Falls.

The Sioux Valley Eye and Ear Academy will hold its midwinter meeting at Sioux City, Iowa, on Tuesday, January 22. A fine program will be given. There will be a banquet in the evening, followed by a round-table discussion of interesting cases. All eye and ear men are cordially invited to attend. Dr. J. B. Naftzger and Dr. L. N. Grosvenor, of Huron, S. D., are the president and secretary, respectively, of the Academy.

Dr. R. G. Mayer, formerly of Cresbard, S. D., has become head of the Department of Urology and Dermatology of the Aberdeen Clinic. Dr. Mayer, before taking up his work in the Aberdeen Clinic, spent several months in special work in his line in New York City. We noticed in these columns in our last issue that Dr. C. F. Crain had joined the Clinic as head of the Department of Medicine. Dr. Crain is the son of Dr. F. M. Crain, one of the best known medical men in South Dakota.

#### PROGRAM OF ST. PAUL CLINIC WEEK

The clinical program will consist of clinics in all branches of medicine and surgery in the various hospitals of the city, the exact program will be announced on the bulletin board each afternoon preceding.

Tuesday Afternoon, 2 P. M. to 6 P. M.

Symposium on "Intestinal Obstruction":

Etiology	-	-	-	Dr. E. M. Jones
Surgical Differential Diagnosis	-	-	-	Dr. F. J. Plondke
Medical Conditions Simulating	-	-	-	Dr. J. A. Lepak
Treatment	-	-	-	Dr. A. Mac Laren

"Repair of Strictured and Missing Portions of Excretory Ducts," - Lewis L. Mc Arthur, M.D., Chicago.

Wednesday Afternoon, 2 P. M. to 6 P. M.

Symposium on "Life Insurance":

Clinical Contrasted with Insurance Opinion of an Insurance Applicant" - Dr. J. Allen Patton, of the Prudential Life Insurance Company of America.

Examiners' Relationship to the Company and Its Bearing on Medical Selection - Dr. F. L. Grosvenor, Chief Medical Director of the Travelers of Hartford.

Pluerisy in Relation to Life Insurance - Dr. Robert L. Rowley, Chief Medical Director of the Phoenix Life Insurance Company of America.

"Reconstructive Surgery" - Harry E. Mock, M.D. Chicago.

7 P. M. a buffet luncheon followed by an entertainment.



Thursday Afternoon, 2 P. M. to 6 P. M.

Symposium on "Heart Irregularities":

Classification - - - Dr. Harry Oerting  
Instrumental Recognition Dr. H. E. Richardson  
Clinical Recognition - - Dr. C. N. Hensel  
Prognosis and Treatment Dr. E. T. F. Richards  
"Problems of Chronic Middle-Ear Suppuration" -  
George E. Shambaugh, M.D., Chicago.

7 P. M. Banquet of the Minnesota Academy of Ophthalmology and Oto-Laryngology, at which Dr. Shambaugh will speak on "Clinical Problems of Oto-Laryngology."

Friday Afternoon, 2 P. M. to 6 P. M.

Symposium on "Diseases of Kidney and Ureter":

Etiology and Pathology of Renal Disease -  
- - - - - Dr. E. T. Bell  
Medical Aspects of Renal and Ureteral Diseases  
- - - - - Dr. E. T. Herrmann  
Diagnostic Methods in Renal and Ureteral Diseases  
- - - - - Dr. E. E. B. Foley  
Surgical Aspects of Renal and Ureteral Diseases  
- - - - - Dr. A. Schwyzer

William F. Braasch, M.D., Dept. of Urology, Mayo Clinic, will give a dry clinic on "Prostatism" following the above symposium.

**Position as Office Nurse Wanted**

A graduate nurse with some office experience desires a position as office nurse; will accept a moderate salary. Address 412, care of this office.

**Part of Minneapolis Office for Rent**

Private office and use of reception-room with Drs. Weston and Willcutt, 801 Physicians and Surgeons Building, Nicollet and 9th Street; Tel. Geneva 4783.

**Position in Hospital or Clinic Wanted**

A graduate nurse with experience desires a position in a clinic or hospital. Will go outside of the Twin Cities. Best of references. Can do some x-ray work. Address 42, care of this office.

**Splendid Opening for a Physician**

Who will take up a country practice in the best and pleasantest town and community in Central Minnesota, not far from the Twin Cities. For particulars, address 45, care of this office.

**Position as Technician Wanted**

By a woman with the best of training as a general laboratory technician. Can give the highest of recommendations, and will go to any part of the Northwest. Address 47, care of this office.

**Trial Case and Fitting Frames for Exchange**

Complete trial case, fitting frames, and everything needed for fitting glasses, outfit worth \$100. Will exchange for Aloe Lightning cabinet or Therapeutic lamp in good order. Address Dr. A. H. Bullock, Cushing, Iowa.

**Position Wanted**

An expert x-ray technician, with a slight knowledge of routine laboratory work, desires a position, in the Twin Cities or the country, at a moderate salary. Will assist in office work or do any kind of work she can handle. Address 411, care of this office.

**Hospital Position Wanted**

A graduate nurse of large experience in hospital work and management, also experienced in giving anesthetics and capable of making preliminary calls in obstetrical cases, desires a responsible position with a hospital or clinic. Highest of references. Address 408, care of this office.

**Physician's Residence for Sale in St. Paul**

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

**Physician's Equipment and Instruments for Sale**

Includes Allison table, oak instrument cabinet full of instruments, dressing table, nebulizing outfit with motor, apparatus for application of hot air, therapeutic lamp, high-frequency generators, blood-pressure apparatus, specialist's chair, sterilizer, etc. Price for quick sale \$250. Address 43, care of this office.

**Wanted—A General Practitioner**

Wanted—A General practitioner who is not inclined to do surgery, but will assist in major operations, to locate in a South Dakota town of 1,350 on the C. M. & St. Paul Railway, to work with a surgeon who owns a private hospital. Must be a good general man, must be a Catholic, and must be licensed in South Dakota. This is positively an A No. 1 location. Address 41, care of this office.

**Physician Wanted**

Excellent location in central eastern North Dakota now without a physician. Large territory of good agricultural district including several other towns. Two railroads with good passenger service contribute to practice. May move into vacated physician's office in connection with dentist if desired. Office furniture and x-ray machine here for physician's use. Nothing for sale. Address O. H. Hoffman, D.D.S., Hannaford, N. D.

**Small Minnesota Hospital for Sale**

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 2

MINNEAPOLIS, JANUARY 15, 1924

Per Copy, 10c  
A Year, \$2.00

## A PLEA FOR THE STRAIGHT LIMB IN THE TREATMENT OF PATHOLOGIC CONDITIONS OF THE KNEE-JOINT\*

By CHARLES A. PARKER, M.D.

Associate Professor of Surgery, Rush Medical College  
CHICAGO, ILLINOIS

### IMPELLING FACTOR IN THE PREPARATION OF THIS PAPER

This paper has been forcefully suggested by a series of patients, mostly adults, seeking advice for chronically inflamed knees that by reason of their flexed and painful condition had practically invalidated their owners. Walking was frequently impossible, or, in the case of single knees, possible only with the aid of crutches. These patients had not been without medical attention,—in fact, many of them could relate exhaustive histories of injections of vaccines and serums, multiple operations for possible focal infections, divers forms of physiotherapy, and the use of various braces and appliances, while the necessary correction of the deformity was consistently being neglected.

This is not said in disparagement of the various therapeutic measures, used if they were indicated, but to emphasize the futility of all general measures where there is neglect of the necessary local one. It is the constant recurrence of just such instances of futile treatment with the persistent neglect of local essentials that, as before remarked, has impelled the preparation of this paper.

Some illustrative cases to be presented will be more instructive in the light of certain general principles affecting the care of these joints

and the basis of all well-considered treatment.

### GENERAL PRINCIPLES

The pathologically flexed knee, unless firmly ankylosed, is a weak knee, and, if the deforming process continues inflammatory, is usually painful in walking. The flexion shortens the functional length of the limb, and increases the limp. All of these are undesirable complications and should be avoided or corrected.

The extended knee, even in complete paralysis of the limb, will support the body-weight, standing or walking; in arthritis it reduces the movements, and thus the pain, to a minimum, and the extended position gives the greatest length of the limb with the least amount of limping. These are the conditions of comfort and should be secured and maintained. Neglect of these simple principles is so common and the results so distressing that one feels fully justified in emphasizing their consideration.

### TYPES OF CASES

A recent instance was that of a woman, Mrs. H., aged 61, who up to four years ago had enjoyed good health and had taken an active part in the duties of a farmer's wife. Then she suffered from a severe infection of the urinary tract, involving the bladder and ureters.

During this time the left knee became swollen,

\*Presented at the forty-second annual meeting of the South Dakota State Medical Association, Watertown, S. D., May 23 and 24, 1923.



painful, and flexed, and it was in this condition when I examined it.

The flexion was 90 degrees. The knee allowed a few degrees of movement but became painful on attempts to pass these very narrow limits. The patient had walked with crutches during the last four years and had received local and general treatment for the arthritis, but no one had made proper efforts to straighten the knee. The *x*-ray showed diminished density but no marked changes in the contours of the bones. A single general anesthetic sufficed, under the gradual application of force, entirely to straighten the knee, which was then placed in a plaster cast. Motion was not promised. The only thing promised was an attempt to straighten the limb, which, if successful, would increase the stability of the limb, diminish the pain, and dispense with the crutch.

All these were accomplished. The reaction was slight, the pain from the trauma continuing but three or four days.

The patient went home in two weeks with the leg straight and wearing a cast. A month later this cast was replaced with a removable one to protect the joint against injury and to prevent a return of the deformity. At this time the patient had a few degrees of movement in the knee, was free from spontaneous pain, and could walk some without crutches, but preferred the crutches for safety.

Another woman, Mrs. D., in the hospital ward, had not walked for over eight years on account of osteo-arthritis of both knees, with flexion, pain, and disability.

This patient had had her ileum, cecum, ascending, and part of her transverse colon removed, and her gall-bladder drained besides a panhysterectomy, appendectomy, and multiple and frequent operations upon the nose, throat, and sinuses. A series of casts corrected the knees, and the patient was able to walk alone and without casts for short distances before she left the hospital. Letters received after she left the hospital told of continuing improvement, so that she went shopping without any artificial aids to the legs.

Some years ago a woman, Mrs. G., aged 57, came to our office with flexed knees and barely able to walk with the aid of two crutches. There was some movement with coarse crepitus in the knees, which were not very painful. X-rays showed extensive erosion of the tibial and femoral articular surfaces.

These knees were straightened under one anesthetic and put in casts. This patient suffered severe pain for several days after the correction. Removable casts were later applied, and, now, eleven years afterward, at infrequent intervals, she walks into the office with straight limbs and actively flexing joints to complain of occasional pains in her knees. These knees flex 90 degrees, which is an unusual result.

A man, Mr. C., aged 64, was confined to his bed in the ward with the left knee flexed to a right angle and with a greatly swollen foot. He could not walk; his method of progress was on his hands and knees and had been so for months. The internist in charge of the case assured me there was no contra-indication to a general anesthetic, and this was given, the knee completely straightened, and a cast applied. In twenty-four hours the edema had almost completely left his foot, a very striking and unique experience. With a series of casts he was later able to walk out of the hospital with his leg straight, motion limited, and pain relieved.

It is a familiar experience for an acute general arthritis in the medical wards to run its usual course with all joints clearing up except one, the knee often being the refractory member. Its recovery is awaited and expected, but the convalescence is delayed by weeks and months because this flexed and painful joint cannot help itself to recovery. This joint needs just the help we advocate; it must be straightened either slowly with apparatus or at once under anesthesia.

The temperament of the patient or the doctor will often decide which method to use.

No attempt will be made here to record all of the many other types and conditions of pathologically bent knees, but a very common deformity is the one following acute osteomyelitis of the bones forming this joint. Either by nature or surgical art osteomyelitis of these bones not infrequently involves this joint, leaving it in a flexed, weak, and painful condition. We have the same duty here as in the previous type. Usually the ankylosis is not bony, and a series of stretchings will straighten it out with more or less limitation of movements, but straight, effective, and painless.

The tuberculous joint perhaps receives the best treatment in proportion to the number of cases handled, as its special care has been so generally emphasized. Here, however, the admonition to keep the knee entirely straight is just as necessary as in the other classes.

Mention may just be made of the neuropathic knee, which is best steadied in the extended position, as is also the flail knee of poliomyelitis or from other causes.

The traumatic knee deserves equally as good treatment.

#### TREATMENT

The method of obtaining the results demanded in these flexed joints necessarily varies according to circumstances. Prevention of the deformity would seem to be the natural course to follow, and in the hands of those familiar with the sequence of joint pathology is the one effectively pursued. The use of fixative measures in complete extension for practically all acute and chronic inflammatory affections of the knee joints is now too well established to need further comment. An additional point in favor of the extended knee is the clinical observation that the patella much less frequently becomes ankylosed in this position. However, many bent knees exist and need correction. This correction is accomplished by means best suited to the individual case.

Some of the severe deformities with 90 degrees or more of flexion and a tendency to subluxation may defy our skill or tax our ingenuity to the utmost to secure a good result.

The general condition of the patient may preclude any attempts at correction in difficult cases, and there will always be doubtful cases requiring our best surgical judgment whether to intervene or leave alone. Yet, the number of cases suitable for treatment will still be large.

In the non-tuberculous types I have not hesitated to use force, under anesthesia, especially in the tender knees and particularly in older people who will not allow many attempts at straightening. Immediate correction seems best for them. Those who cannot safely take an anesthetic must go through the slower process of gradual correction or forego treatment entirely.

The question of resulting movement is made secondary. Correction with the straight leg is the object sought; motion may or may not develop. As a rule, some motion remains if it was present before the correction, and sometimes it develops where pain and local conditions prevent it before the straightening. Motion must not be promised; even the straightening may not be possible. If there is some motion present, correction can usually be made by manual force.

If not all at one time, then, by a series of graduated efforts.

If the ankylosis is bony or densely fibrous or it is an old tuberculous joint a bone operation is usually indicated. It is safer to do the bone work away from the site of the joint infection. This is particularly true after pyogenic and tubercular infections.

The simplest method, and one fitting the largest number of cases, is the resection of a transverse wedge, apex posteriorly, from the front of the femur just above the epiphyseal line. The complete extension may have to be done in stages when immediate correction would interfere with the circulation or nerve supply of the parts below.

With the manual correction and the operative measures most of these deformities can be overcome.

The specially difficult and rare cases will not be discussed here.

The deformities of trauma, fractures, congenital defects, etc., will be corrected according to their individual requirements.

Not only must the knee be corrected, but it must be maintained fully extended, and not flexed 15 to 20 degrees.

We are still largely under the influence of the old teaching, that the knee should be held in slight flexion, 10 to 20 degrees, during healing, in order to have a more normal appearing limb when sitting or walking, the shortening enabling the patient better to clear the ground and to avoid a laterally swinging movement of a long leg when making the forward step. As a matter of fact the flexion of 10 to 20 degrees helps very little in shortening the leg or in keeping it out of the way when the person is sitting, and in most legs the additional shortening is not necessary, as the disease itself commonly produces enough. In the occasional case where the leg is long a thicker sole may be put under the other foot.

Such possible gains from flexion are so slight compared with the certain disadvantages so constantly arising from the practice, that the whole principle of slight flexion for the stiffened knee should be completely discarded and the doctrine of the straight knee established in its place. Moreover, clinical observation shows that the slightly flexed knee is an elusive figure, as it can never be depended upon to remain slightly flexed, unless in bony ankylosis, but tends by gravity



and lack of proper extensor force to increase in flexion and in discomfort and limp.

Physiologically the permanently flexed knee is defective in that it requires for walking or standing constant flexion of the hip and ankle, never allowing the two normal joints to assume neutral positions of rest as regularly occurs with each complete extension of the limb in normal

walking. Walking with a permanently extended knee is also not physiological, but at the time when the greatest weight is put upon the limb it is always in the best position to sustain it, which is never the case in the flexed limb. It is far more comfortable, efficient, and becoming than the weak, irritable, and limping condition it has displaced.

## DIPHTHERIA OF THE GENITAL TRACT IN PUERPERAL WOMEN\*

By R. H. BEEK, M.D.

LAKOTA, NORTH DAKOTA

The complication of an invasion of the uterus, vagina, and vulva of the puerperal woman is of considerable rarity, and the literature of the subject so scanty that I have thought it worth while to report the cases which comprise the basis of this short paper.

I have been able to find very little on this subject in my own library, and an appeal to the University brought the response that there was very little literature there on this subject. De-Lee, in a comparatively recent edition of his work, states that there are on record forty cases of which he has had one. This would indicate that the occurrence of diphtheritic infection of the genital tract in the puerperal woman is rare, although, no doubt, there have been many cases that have passed unrecognized.

The symptoms exhibited are those of infection, but vary somewhat from the usual course of puerperal fever, so that, unless this particular type of infection is kept in mind and means taken for an exact diagnosis, it would be easy for a mistake in diagnosis to be made.

During 1921 I saw three cases of puerperal diphtheria, all seen within eight months, all widely separated as to residence, and all attended by different physicians.

During an active practice of many years I have seen and recognized but these three cases, and these all occurred within a few months of each other. The condition to me was but a name, and its recognition in these cases an irrefutable argument for culture to be taken in every case of puerperal sepsis, for it is only by the microscope that an exact diagnosis can be made, and as antitoxin is the treatment to be

used it is necessary that the diphtheria bacillus be demonstrated.

These cases were all seen in consultation. One was confined by a so-called midwife, the other two by regular practitioners, and in each instance no cases of diphtheria were known in the vicinity. The midwife made two vaginal examinations. In the cases attended by physicians, one physician wore gloves during the confinement; I know nothing of the care used in the other case.

The first case was seen October, 1920. This case is the one confined by the midwife. The confinement occurred naturally in a primipara twenty-two years old. In two or three days the woman was not in just as good condition as was desired, and on the fifth day a very mild chill occurred, so mild as hardly to be called a chill, and it was not followed by sweating. This chill was followed by a fever never going above 102°, pulse 110, no distension, and lochia in evidence, but reduced in amount. The general symptoms were those of an ordinary puerperal infection which I so diagnosed, but lacking in that the patient did not seem as ill as had been my experience with other puerperal fever cases and with but slight chill and no sweating. The uterus was tender, but well contracted; and on inspection a membrane was seen over the os uteri apparently extending into the cervix. Examination of culture showed a pure culture of Klebs-Löffler bacillus.

At the time of my visit I gave the patient streptococcus serum with a resulting drop of two degrees in temperature and some improvement in the general condition. This improvement occurred even though there was no streptococcus invasion.

With a bacteriologic diagnosis established, antitoxin was administered. At the second anti-

\*Presented at the thirty-sixth annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.

toxin injection the physician in attendance informed me that a terrific chill occurred, the temperature immediately dropping to normal, and improvement rapidly took place.

The second case came under my observation in March, 1921, and was also in a primipara, twenty years old. In this case, seen about a week after confinement, there had been no chill; temperature was  $102^{\circ}$ ; pulse a little over 100. Extensive unrepaired lacerations were present; I was told that the labor was very hard and forceps used. At this time another physician had been called and he had received a laboratory diagnosis of pure Klebs-Löffler infection. The uterus was well contracted, lochia scant, membrane on lacerations, vagina and cervix. Antitoxin was administered with quick improvement and ultimate cure.

The third case was seen in June, 1921. This patient was confined two weeks before I saw her, being delivered of twins. The physician in attendance used gloves in all his examinations, and delivery was easy, quick, and natural.

Shortly after delivery a moderate temperature developed never going above  $102.5^{\circ}$ , with a pulse in the vicinity of 115, some days lower but never higher.

This woman was sextipara, small of stature, but evidently of considerable resistance. My impression on first seeing her was that she was not seriously ill. On going over the case I told her physician that she impressed me as being ill, similarly to the two cases already detailed, and that I would not be surprised to know that a culture would show her infection to be diphtheritic. This is the closest I came to a diagnosis in any of these cases before bacteriologic examination. Again a culture showed the diphtheritic infection.

The lochia consisted entirely of an intermittent flow of pus; no tenderness anywhere in the pelvis except in the left broad ligament where there was some fullness, but no fluctuation or bogginess.

Immediately on receipt of record from the laboratory she was given 20,000 units of antitoxin in two doses twelve hours apart. The first dose caused some drop in temperature, but shortly after administering the second dose an acute mania appeared, lasting until the death of the patient about a week later. Let me remind you that this patient received no specific treatment until after two weeks of infection.

On thinking over my experience with these cases I am forcibly reminded that none of them seemed very ill, not as ill as one expects to find

in a case of throat and nasal diphtheria sick for several days with no treatment, probably owing to the fact that the diphtheria bacillus is aerobic, and in these cases was not implanted in a part of the body freely supplied with air. None of the patients was seen earlier than five days after the time of confinement, the most probable time of the infection. All the cases exhibited only a moderately high temperature, the fatal case developing high temperature and cerebral symptoms only after two weeks of infection.

Chills and sweating were absent in all the cases except the first, where a chill took place following the second injection of antitoxin, a very mild chill, or chilliness rather, occurring the day after confinement. This is a marked contrast with the ordinary infection which we diagnose as puerperal sepsis, for here we see exhibited usually repeated chills and drenching sweats.

As before stated it is probably impossible to make a positive diagnosis of diphtheria following childbirth in which there is an infection of the genital tract, without recourse to bacteriological examination. I know of no particularly significant objective or subjective symptoms that would lead unerringly to diagnosis otherwise.

With the diagnosis established, treatment suggests itself and needs no comment. Here, as in diphtheria of the throat, early administration of antitoxin is urgent, and I would urge the administration of at least 25,000 units. I believe an error was made in the fatal case in not giving much larger doses of antitoxin.

#### CONCLUSIONS

Diphtheria of the genital tract of the puerperal woman constitutes a distinct clinical entity, and may be met with at any time, whether diphtheria be present in the neighborhood or not.

No particularly distinct signs and symptoms characterize the disease. Diagnosis can be made positively only by a bacteriologic examination.

Antitoxin in large doses should be administered early.

#### DISCUSSION

DR. E. C. HAAGENSEN (Grand Forks): One question is brought out in this paper which I think is quite important, and that is the bacteriological examination in diphtheria. In the cases where there was puerperal infection with diphtheria of the conjunctiva I should like to know whether the virulence test was made in those cases, and if the test was made did it show mild or severe infection? In this test if the guinea-pig dies soon after inoculation you know that you have a severe infection and one where you should use your antitoxin. If the guinea-



pig does not die you have an avirulent infection, and the antitoxin is of little use in those cases.

DR. BEEK (closing): Replying to Dr. Haagenon, I will say that there was no virulence test made, but only a culture. The culture was sent in, and a diagnosis of the infectious organisms was made, which was all I wanted to know. I understand that

there is a difference in the virulence of the infection, but I think the antitoxin should be used in every case where a diagnosis of diphtheria infection has been made, because you do not know whether it is a virulent strain or not, and I believe it is best to give the antitoxin without waiting to run it through a guinea-pig to find out whether you have a virulent strain of diphtheria or a mild one.

## TOXEMIA OF PREGNANCY SIGNALIZED BY NAUSEA AND VOMITING\*

By R. T. LAVAKE, M.D.

Assistant Professor of Obstetrics and Gynecology, University of Minnesota

MINNEAPOLIS, MINNESOTA

All evidence seems to point conclusively to the fact that the nausea and vomiting of pregnancy, from the mildest to the most pernicious forms, are the manifestations of a toxemia due to the pregnancy per se and that all other attributed causes, reflex, neurotic, autotoxemic, infections, etc., are merely secondary factors capable of aggravating the condition.

Of all theories as to the nature and origin of the toxin and its *modus operandi*, in my opinion the theory toward which the greatest number of facts point and the theory which indicates both the most rational and the most successful treatment to date, is that the toxin is derived from the protein constituting the male element in the fertilized ovum; that this toxin, a foreign protein, acts directly upon the vomiting center, bringing about in time a train of starvation phenomena, and that the toxin also acts directly upon vital organs, such as the liver, etc., causing pathology demonstrable at autopsy. All pathologic conditions extraneous to pregnancy which throw an extra strain on the eliminative organs, or tend to reduce the general health of the individual, aggravate the condition. Adherence to this theory and rationale directs our treatment in three lines of endeavor:

1. To lower the sensibility of the nervous system so that vomiting and resultant starvation phenomena will not obtain.

2. To use measures which, according to related experimental and empiric data, may render the vital organs less vulnerable to the toxin.

3. To remove, as far as possible, all factors which in non-pregnant states are deleterious to the well-being of the patient.

What maternal mechanism finally overcomes the toxicity of this paternal element in the de-

veloping ovum is a moot question. The usual cessation of symptoms upon the formation of the placenta is significant, though possibly fortuitous. The two fields of investigation which, to my mind, have offered the most plausible solutions of the question and suggested the most successful treatment are immunity and anaphylaxis. It has been stated, on excellent authority, that good results have been obtained by treatment with the blood of women who have just recovered from this toxemia. I have had no experience with this method. It presents certain practical difficulties apparent to all. If the immunity is gained only to a specific parental protein its success should only be infrequent. The successful use of corpus luteum, as advocated by Dr. J. C. Hirst, has been verified by many observers. In my hands it has not proved a success, possibly because of inert preparations. It has never, alone, so changed symptoms that I have been convinced of its efficacy. I have never witnessed harmful results from its use. I believe it should be given a thorough trial.

The rationale of treatment which has proved the most successful in my hands has been suggested by experiments in anaphylaxis, which phenomenon often presents symptoms identical with those of this toxemia, namely: nausea, vomiting, salivation, and abdominal pain. It has been found that if an animal, sensitized to a given foreign protein, is placed under the influence of sedative drugs, such as bromides, chloral and its derivatives (not morphine and its derivatives),—drugs that lower the nervous sensibility of an organism,—before a lethal dose of the foreign protein is given, anaphylactic phenomena and death will not occur, and the animal will emerge from the influence of the drugs unscathed. The application of this treatment in pernicious vomiting has convinced me that it is the most efficient

\*Presented before the Hennepin County Medical Society November 6, 1923.

treatment short of therapeutic abortion, the necessity for which all treatment aims to avoid. The bromide treatment has been advocated by obstetricians for years. Most of its failures have been due to insufficient dosage. Experience proves that if as large dosage is used as in anaphylactic experiments, failures are the exceptions. Other things being equal, success depends upon sufficiently large dosage and finesse of administration.

Dehydration and starvation phenomena, with resulting acidosis, demand the appropriate treatment accorded to these conditions in other states, namely: administration of fluids, glucose, and sodium bicarbonate by rectum, subcutaneously or intravenously, as the emergency of the condition demands.

When it comes to measures aiming to render vital organs less vulnerable to the toxin, what autopsy and experimental data have we at hand that would point to rational therapeutics? At autopsies of fatal cases of pernicious vomiting we often find lesions of the liver and kidneys similar to those found in chloroform poisoning, experimental and otherwise. It may be fair to assume that any treatment which will diminish the extent of the lesions in experimental chloroform poisoning may also diminish the effect of a toxin producing identical lesions. Experiments point to the fact that fresh air (oxygen) and a high carbohydrate diet bring about this result in experimental chloroform poisoning. The application of this treatment in this toxemia of pregnancy has led, in my opinion, to marked improvement in results.

Our third line of endeavor is to overcome all conditions deleterious to the well-being of the patient. In this connection we recognize the judicious correction of pelvic pathology and bowel stasis, clearing up, as far as is possible, all foci of infection; and psychotherapy, aided by isolation from household cares and anxious, importunate, and annoying relations and friends. In regard to the pelvic pathology as a reflex factor, especially retroversion; I believe this has been greatly exaggerated. You will find the incidence of this toxemia approximately four times as frequent in anterior positions of the uterus as in posterior positions in multiparæ, which corresponds to the normal ratio of anterior and posterior positions in nulliparæ. Corrections seldom bring improvement in the toxemia. Too great stress cannot be laid upon the judicial clearing up of foci of infection. As frequent abortions of unknown origin should lead one to renewed activity in searching for focal in-

fection, so should the nausea and vomiting of pregnancy, especially where increasing nausea and vomiting obtain in succeeding pregnancies with the same husband. In my experience teeth, tonsils, appendix, and gall-bladder, in decreasing order, have appeared to be the aggravating factors in many cases.

The following is a summary of routine treatment:

By history and physical examination establish the diagnosis.

Treat judiciously any manifest pathology in the pelvis.

Make a most thorough physical examination, giving especial attention to the presence of focal infection.

Establish the treatment of mouth infection. Thorough and scientific cleansing of the teeth with a dentifrice pleasant to the patient is frequently an aid in overcoming the disagreeable taste so aggravating in this condition. Sometimes chewing gum is found to be of aid.

If the toxemia is mild, fifteen to thirty grains of sodium or the triple bromids in elixir of lactopeptine by mouth every four hours is sufficient to lower nervous sensibility.

Advise taking light nourishment before rising in the morning. Outline a high carbohydrate diet with light meals at frequent intervals.

Fresh air is very important.

It is apparent that the nausea is frequently initiated by cerebral anemia. Improving the vigor of the circulation by food before assuming the erect posture is of importance. In this connection many women are helped by putting a tight ribbon around the neck before rising. This ribbon apparently acts by constricting the external jugular veins and thus keeping more blood in the head. The stimulation of the circulation by food can often be helped by eating candy or malted milk tablets whenever the patient feels weak and faint. This measure has been frequently brought to my attention by patients themselves who always carried a supply with them. In the mild forms of nausea and vomiting these little aids are of great importance for comfort alone.

Be sure that the bowels move once a day by any means best found to suit the individual case.

In severe cases, put the patient to bed in a quiet, well-ventilated room. Hospital isolation is best. Place in attendance your most capable nurse and prohibit visits of relatives and friends.

Cease all administration of fluids and food by mouth.



Give an enema every four hours, if the patient is awake, and after each result place in the rectum six ounces of warm water containing a teaspoonful each of glucose and sodium bicarbonate and sodium bromid. Acacia and laudanum may be added if necessary to quiet irritation. Be sure to induce sleep at night, if necessary by the addition of from fifteen to thirty grains of chloral hydrate to the 8:00 p. m. administration, and repeat every four hours until sleep is induced. Be sure to give the enema and get results before giving the medication. This clears out the bowel, tends to overcome antiperistalsis, and the patient is not so likely to expel the medication. An important point is to instruct the nurse to use gentleness and much lubrication in introducing the tube.

If severe dehydration obtains, drugs and water should be given by continuous proctoclysis.

Begin administration of food by mouth twenty-four hours after vomiting has ceased. Begin with a dry diet high in carbohydrate content and low in protein and fat, laying great stress on individual taste. Zwieback and popcorn are often well borne. Fruit juices and water should be cautiously tried between meals.

The day after feeding by mouth has begun, reduce the dosage of medication. This is best accomplished by first reducing the number of administrations. An amount will finally be reached which will keep the patient comfortably free from nausea. People differ as to the time of day when the nausea is most severe. It is well to give the largest dose of the drug in the administration directly preceding this time. It is often possible to reduce the dosage of the drug one-half each day.

Do not allow the patient to raise the head from the pillow until a marked improvement is observed. The feeling of general well being, toleration for food, and the pulse are the guides. If the pulse remains rapid, go slowly. It is sometimes necessary to keep the patient in bed for weeks under medication until immunity or the protective action of the placenta brings the process to a close. Many patients are allowed to get up too soon. In no condition does success depend to a greater extent upon constant attention to details. By careful and correct early treatment we will preclude, in most cases, the later necessity for imperative operative interference.

The urine must be watched closely. The presence of sugar indicates the necessity for reduction or discontinuance of glucose administra-

tion. Acetone and diacetic acid indicate starvation acidosis and are aids in combination with the pulse and mental condition in determining the advisability of therapeutic abortion. The same may be said of increasing amounts of albumin and casts. All laboratory data, though important, are of secondary importance in comparison with the pulse and the mental condition as indicators for operative interference.

If you will analyze the fatal cases of pernicious vomiting that have come under your observation you will conclude, I believe, that the fatalities can be attributed to one or more of three factors in the treatment: inattention to early proper treatment, failure to recognize signs which should point to consultation and possible interference, and, finally, to procrastination in operative interference. The proper time to interfere is the most important decision which has to be made in pernicious vomiting because, in the last analysis, interference in time is a sure therapeutic measure. In our laudable zeal to save two lives we have too often sacrificed both. I believe we have been too conservative. We have given too much thought to possible malingering and imputation of motive, which can now in most places be absolutely counted out by our facilities for careful observation of clinical and laboratory data on the one hand, and by our facilities for consultation on the other. Further progress lies in the general early recognition of signs marking the individual case as grave, and in setting more definite landmarks pointing to necessary interference.

In determining the need for operative interference in pernicious vomiting the two most important indicators are the mental condition and the pulse.

Any change in consciousness not accounted for by the bromid and chloral demands interference. This mental change may manifest itself apart from changes in the pulse. It is easy to distinguish from the drowsiness of sedatives. The general condition of the patient, together with laboratory findings, renders its fabrication well-nigh impossible. It generally takes the forms of slight irrationality or stupor. It may obtain when nausea and vomiting have ceased, and one is thrown off his guard on the side of false security. If seen at this stage for the first time one may be led to consider the patient a nervous and mental case. Any change in the mental condition should be attentively looked for by the nurse and physician. Under advisement it calls for interference.

A rising pulse rate is the other indicator demanding careful attention. I believe that the pulse should never be allowed to rise above 140 without immediate operative interference. At what time, when the pulse rate lies between 110 and 140, one should advise therapeutic abortion depends upon one's experience in regard to the summation of data as regards response to treatment and physical and laboratory findings. In this connection I have come to regard a rising pulse with beginning intermittency as a sign demanding intervention, unless treatment under medical consultation quickly corrects it.

Apart from the ethics of the question, I feel that in serious cases of pernicious vomiting every one of us should have multiple consultation; and, where the best opinion stands equally divided between interference and non-interference, we should give the mother the benefit of the doubt and choose intervention. Many of these women will go through many subsequent pregnancies with little or no trouble.

The operation of choice depends upon the gravity of the case. Though it is best to empty the uterus at one sitting, by vaginal hysterectomy if necessary for reasons of poor environment or lack of skill in the operative technic of vaginal hysterectomy, the two-stage method of emptying the uterus may be chosen,—dilating and packing the cervix and lower uterine segment with gauze, impregnated or not with glycerine as one sees fit, and thoroughly packing the vagina, the packing to be removed in twenty-four hours, when either the products of conception will come away with the gauze or they can be removed with placental forceps, finger, or dull curette. Where possible the finger method of removal is the safest and the best. One should always be ready to pack again, for hemorrhage may demand it. All preliminary preparations for saline infusion or blood transfusion should be made, should the gravity of the situation demand.

## THE PAST ACCOMPLISHMENTS AND THE FUTURE POSSIBILITIES OF THE MEDICAL STAFF OF THE LYMANHURST SCHOOL FOR TUBERCULOUS CHILDREN\*

By J. A. MYERS, PH.D., M.D.

Medical Director of Lymanhurst School for Tuberculous Children; Assistant Professor of Preventive Medicine and Public Health, University of Minnesota

MINNEAPOLIS, MINNESOTA

Scarcely two years have passed since the opening of the Lymanhurst School for Tuberculous Children. On the first day of school there was one child in attendance. On the second day there were about twenty-five in attendance. The medical staff consisted of three or four physicians whose duties consisted of making general examinations and prescribing treatment. In a very short time the school attendance increased, and with this increase came numerous medical problems. Children came with various forms of tuberculosis demanding attention by physicians representing many of the medical specialties. As demands have arisen new staff members have been added, so that the medical staff now consists of twenty-seven specialists.

As the work progressed it became necessary to arrange for special departments, such as a

Laboratory and X-ray Department, an Observation Department, a School Department, and an Out-Patient Department.

*The Laboratory and X-ray Department.*—From the outset it was evident that laboratory and x-ray facilities were indispensable. Space was provided, and splendid laboratory equipment was installed as soon as possible. The x-ray equipment provided was thoroughly modern and complete. Numerous laboratory examinations have been made and more than 1,200 pairs of stereoscopic x-ray pictures have been taken in addition to many fluoroscopic examinations.

*Observation Department.*—It is well known that the determination of the activity of a tuberculous lesion will often tax the ingenuity of the most skillful physician. In many cases it is only after a sufficient period of observation in bed that one is able to determine the activity of a

\*Presented before the Consulting Medical Staff of the Lymanhurst School for Tuberculous Children, May 8, 1923.



tuberculous lesion. About one year ago a splendid observation ward was opened with a capacity for twenty patients. Children with any manifestations of active tuberculosis are placed in this ward for a period of study. The ward is not intended for the treatment of patients needing hospital care; therefore the maximum length of time a child may remain for observation is six weeks.

*Out-patients Department.*—Early in the history of this work it was found that much time of the physicians was being consumed by parents, teachers, and nurses bringing in children from other schools for special tuberculosis examinations. Although there already existed in the city several clinics for the diagnosis of tuberculosis and other diseases of children, the demand at Lymanhurst became so great that it seemed best to detail certain members of the staff to this work. At first this department was in operation one or two half-days each week, but soon it was found necessary to increase the time to three, and at present four half-days each week are demanded. Each examination made in this department consists of a history, physical examination, *x*-ray examination, tuberculin test, and laboratory examinations when indicated. Since its existence 1,108 children have passed through this department, and in many instances more than one examination has been made on each child.

*School Department.*—This department is concerned with the children who are enrolled as regular attendants in the Lymanhurst School. On admission, or as soon after as possible, each child is examined by a pediatricist, cardiologist, röntgenologist, stomatologist, otolaryngologist, ophthalmologist, orthopedist, gastro-enterologist, dermatologist, neurologist, serologist, anatomist, and laboratorian. While in the school the children are re-examined when necessary. Alpine sun-lamps have been installed, and heliotherapy is administered to as many cases as time will permit. Other treatments are recommended, such as the eradication of certain foci of infection, dental prophylaxis, and correction of vision and diet. Since its organization, 340 children have passed through this department.

Owing to the increased demands upon the medical practitioner's time, an unfortunate condition has arisen in many places. There has been a strong tendency on the part of many men to use short-cut methods and attempt to diagnose various diseases on the basis of a single positive finding or test. For example, patients have been given antiluetic treatment on the

basis of a single positive Wassermann reaction which later proved to be due to bad technic or wrong interpretation of the test. It is not so long ago since the sanatoria of the country were crowded with patients who were sent in because of no other finding than a positive von Pirquet test, and to-day we find many individuals receiving diagnosis of active pulmonary tuberculosis and being stigmatized on the basis of certain insignificant shadows cast by the *x*-ray. Again, there are individuals spending time in sanatoria for the tuberculous who were sent in solely because a few râles were found to exist in one or both lungs. I saw recently a patient who was reported as a positive case of tuberculosis because of a family history. The only abnormal condition which this patient had at the time he was reported was an acute upper respiratory infection. There are even a few individuals who will go so far as to diagnose tuberculosis or heart disease with no other evidence than a reduced vital lung capacity. Others have become so enthusiastic over the basal metabolism test that they are willing to recommend thyroidectomy after a single positive test with no other findings. This unfortunate condition has led to a bad interpretation by the public. How frequently we see patients who state that they came only for an *x*-ray examination, a blood test, or a basal metabolism test. They state that no further examination is necessary in their cases. This state of affairs promotes quackery and encourages the members of certain cults to install *x*-ray equipment, basal metabolism apparatus, etc., in an attempt to satisfy the increasing demand of the public for such single tests. The public must be taught that the interpretations of such tests are far more important than the tests themselves and that he who interprets must be well trained in the true healing art. In view of these facts the policy at Lymanhurst from the beginning has been to take all of the important tests and special phases of the examination into consideration, but in no instance to regard any one of them as infallible. The final diagnoses have been made after careful consideration and correlation of all the valuable data obtainable. Each child examined by this staff must have a history carefully taken, a complete general examination, and an examination by each of the physicians representing the various medical specialties. In this manner non-tuberculous conditions are often detected, the removal of which hastens the healing of the tuberculous lesions. One may be criticized on the

basis of giving these children too thorough examinations. Of course, there is the possibility of going to extremes in this direction. For example, doing a biopsy for Hodgkin's disease, or blood study for lead poisoning in every case. To be sure, such special examinations are never made unless they are definitely indicated.

In a tuberculosis program there is no factor more important than education. There are many phases of education, but none of them is more important than that of educating the physicians. Consequently, from the beginning the Lymanhurst staff adopted the policy of educating itself regarding tuberculosis before attempting to educate others. It was agreed that two staff meetings should be held a month, and that one or more papers on some phase of tuberculosis should be read at each meeting. These papers were to be read by staff members and invited physicians; and we have learned much from each other and from invited physicians. It has been requested that no paper be read before the staff unless the author had it in form for publication in a medical journal. The following list of papers shows that in most instances the authors have complied with this request:

Harrington, F. E., Lymanhurst: The Reason for and the Establishment of the School, *The Journal-Lancet*, 42:237 (May 15), 1922.

Ziskin, Thomas: Cardiac Signs in Early Pulmonary Tuberculosis in Children, *The Journal-Lancet*, 42:244 (May 15), 1922.

Giessler, Paul W.: Orthopedics in Tuberculous Children, *The Journal-Lancet*, 42:246 (May 15), 1922.

Allison, R. G. and Morse, R. W.: The Röntgen Diagnosis of Pulmonary Tuberculosis in Childhood, *The Journal-Lancet*, 42:247 (May 15), 1922.

Wright, Charles Benjamin: Some Gastro-Intestinal Data in a Group of Tuberculous Children, *The Journal-Lancet*, 42:249 (May 15), 1922.

Waldron, Carl W.: Incidence of Infection of Mouth, Nose, Throat and Ear in Tuberculous Children, *The Journal-Lancet*, 42:251 (May 15), 1922.

Stewart, Chester A. and Sheets, O. B.: The Value of the Determination of the Vital Capacity of the Lungs in the Diagnosis and Prognosis of Pulmonary Tuberculosis in Children, *The Journal-Lancet*, 42:253 (May 15), 1922.

McKinlay, C. A.: A Study of the Basal Metabolism and the Thyroid Gland in a Group of Tuberculous Children, *The Journal-Lancet*, 42:257 (May 15), 1922.

Scammon, Richard E.: A Comparison of the Height-Weight Indices of Suspected Tuberculous and Normal School Children, *The Journal-Lancet*, 42:259 (May 15), 1922.

Myers, J. A.: Classification and Treatment of Suspected Tuberculous School Children in Minneapolis, *The Journal-Lancet*, 42:239 (May 15), 1922.

Nixon, Charles E.: Observations on the Neurologic and Mental Status of a Group of Tuberculous Children, *The Journal-Lancet*, 42:260 (May 15), 1922.

Anderson, Edward Dyer: A study of the Clinical and Physical Findings and the Tuberculin Reactions in a Group of Tuberculous Children, *The Journal-Lancet*, 42:262 (May 15), 1922.

Harrington, F. E. and List, Walter E.: An Observation Hospital and Day School for Tuberculous Children, *Modern Hospital*, 19:102 (August), 1922.

Myers, J. A.: The Detection and Care of Tuberculous School Children in Minneapolis, *Journal of the Outdoor Life* (December), 1922.

Camp, Walter E.: The Common Types of Ocular Tuberculosis, *Minnesota Medicine*, 5:719 (December), 1922.

Benjamin, A. E.: The Possible Future of Lymanhurst and Its Influence upon the Health of Future Generations, *The Journal-Lancet*, 42:545 (November), 1922.

Pottenger, F. M.: Some Observations on the Early Diagnosis of Tuberculosis, *Minnesota Medicine*, 5:571 (October), 1922.

Bendes, J. H.: Heliotherapy, *The Journal-Lancet*, 43:35 (January 15), 1923.

Laird, A. T.: The Subsequent History of Children Discharged from Tuberculosis, Sanatoria, *American Review of Tuberculosis*, 7:207 (May), 1923.

Harrington, F. E.: Further Progress in Tuberculosis in Children from the Public Health Standpoint, *The Journal-Lancet*, 42:491 (October), 1922.

Scammon, R. E.: The Growth of the Dimensions of the Chest in Childhood, to be published.

Seham, Max: The Handling of Heart Disease in Children.

Larson, W. P.: The Agglutination Test in the Diagnosis of Tuberculosis.

Rodda, F. C.: X-ray of Chest Conditions in Children.

Stewart, David A.: Prognosis in Tuberculosis.

Stewart, C. A.: Further Studies in the Vital Capacity of the Lungs of Children, to be published.

Bosworth, Robinson: The Control of Tuberculosis, *Minnesota Medicine*, 6:296 (May), 1923.

Jackson, C. M.: The Comparison of Organ Weights in Tuberculosis with those in Other Conditions Producing Emaciation.

Pottenger, F. M.: Tuberculosis in Children, *The Journal-Lancet*, 43:114 (March), 1923.

Cole, Wallace H.: Some Etiological Factors in Surgical Tuberculosis in Childhood, *Journal of Bone and Joint Surgery* 5:445 (July), 1923.

Ziskin, Thos.: The Heart in Tuberculosis, *Minnesota Medicine* (in press).

Helmholz, Henry F.: Primary Infection in Tuberculosis.

Taylor, H. Longstreet: The Tuberculosis Crusade in Minnesota, *Minnesota Medicine*, 6:291 (May), 1923.

Wright, C. B.: A Study of the Gastro-Intestinal Tract of 250 Children in the Lymanhurst School, *Archives Internal Medicine*, (in press).

Mariette, E. S.: Extrapleural Thoracoplasty.

Myers, J. A.: Tuberculosis in School Children: Its Diagnosis, Classification and Treatment, *Minnesota Medicine* (August), 1923.

Allison, R. G. and Morse, R. W.: Bronchiectasis in Childhood, (to be published).



Lippman, H.: The Social Service Aspects of the Lymanhurst Out-patient Service, *Journal-Lancet* (July 15), 1923.

Young, Katherine G.: Educational Problems in the Special School, (to be published).

Siperstein, D. M.: Intraperitoneal Transfusion of Citrated Blood, (to be published).

Slater, S. A.: Certain Problems in the Diagnosis of Pulmonary Tuberculosis. *The Journal-Lancet*, (July 15), 1923.

Chesley, A. J.: The Tuberculosis Work of the State Board of Health, (to be published).

Anderson, E. D.: A Study of Hilum Gland Enlargement in a Group of Tuberculous Children, *Journal of the American Medical Association* (October 6), 1923.

It will be seen, therefore, that since its organization the Lymanhurst Staff has examined more than 1,200 children and has had an opportunity to listen to the reading of more than forty papers on tuberculosis and closely allied subjects. The members also have had considerable opportunity to offer instruction to others through personal conversation, lectures, and publications.

The entire work has been made possible by Dr. Harrington, Commissioner of Health and Director of Hygiene and Dr. List, Superintendent of the General Hospital, who have been not only constant sources of enthusiasm but also sources of material and equipment so necessary for these accomplishments. I am sure that their splendid spirit of co-operation has won for them the utmost respect of every member of this staff. The members of the staff have devoted much time and energy to the work, and whatever has been accomplished has depended, not upon the efforts of any single member or any small group of members, but upon the staff as a whole. Personal gain, professional jealousies, and prejudices have been in the discard, and the spirit of co-operation and helpfulness

has ruled. It is a combination of all these things that has brought about the past accomplishments, which in turn have caused the name *Lymanhurst* to spread throughout this land and even to other nations.

The most difficult days of organization have passed, a public sentiment not too favorable toward the school has been converted into one that is quite satisfactory, and the institution is equipped for excellent work,—in short, the picture seen to-day stands in bold contrast to the one we viewed slightly less than two years ago.

Studies made in certain parts of the world have led us to believe that approximately 1 per cent of school children have tuberculous lesions which should be observed and treated in special schools for tuberculous children. If this is true, there are approximately 700 such children in Minneapolis. It is generally believed that the incidence of tuberculous disease increases soon after the age of puberty. If this proves to be true in Minneapolis, many more cases will be presented soon when our scope is to be widened so as to include high school students.

Already we have excellent records on a reasonably large group of children. Observations and subsequent findings on these children as they pass through the age of puberty and into adult life should furnish material for definite contributions to our knowledge of tuberculosis.

With such a wealth of material at our disposal, with the combination of the philanthropic and scientific spirits of the members of this medical staff, with our lines of investigation already established and in operation and with the splendid support of those in charge of the municipal organizations closely allied to this work, I can see no limit to our future possibilities.

## A TREATMENT FOR GREENSTICK FRACTURES AND FOR DISLOCATIONS OF THE CLAVICLE\*

BY WILLIAM A. FULTON, M.D.

BURLINGTON, WISCONSIN

Greenstick fractures come within the province of the railway surgeon rather infrequently, and the same may be said of dislocations of the clavicle, for they are of comparatively rare occurrence. The former are easily handled, but the latter present real problems.

\*Presented at the annual meeting of the Soo Surgical Association.

It is now twenty-eight years since I treated my first greenstick fracture. The patient was a boy of five, and the fracture was the most usual one (in the forearm), the bones being bent backwards. I used the method I had been taught, straightening the bones forcibly and applying anterior and posterior splints. While the results were perfectly satisfactory, an anesthetic

tic was required, and the father, who was standing near by, winced when he heard one of the bones snap as it straightened. I confess the sound was not a cheerful one.

The second case, a duplicate of the first, was that of a little girl of two and a half years, who came a few days later. In the meantime I had pondered somewhat over the first case, and concluded that if a greenstick fracture could be partially straightened without much pain, that constant moderate pressure might result in complete reduction. The little patient, being so young, was a favorable one on whom to try my theory. There was no difficulty in straightening the bones sufficiently to make the application of splints possible, in fact the little tot did not even cry.

The splints were made from thin wood and were the width of the forearm; they were padded with cotton and bound with a bandage. The posterior splint, or the one to be applied to the concave flexure, had an extra padding of wool bound to each end. The anterior splint was similar, except that it had but one wool pad, so placed as to make contact with the most prominent point of anterior flexure.

In applying the posterior splint the wool pads made contact with ends of bone only. The anterior splint extended from the flexure of the elbow to the wrist, and made contact with convexity only. The splints were parallel, of course, and were held in place, moderately snugly, with encircling strips of adhesive tape placed near the ends and making contact with the skin, to prevent rotation. The constant pressure was secured by using encircling rubber bands near the ends of the splints, and placed over the adhesive tapes, to prevent pressure irritation of the skin. In two days the bones were straight, and padded splints, made to conform to the other forearm, were used till the forearm was strong enough to need no support.

This is a good example of the method of treatment for the average case. In fractures of the femur a very short splint may be used for the convexity of the bone until straightening is complete. The amount of pressure used need not be uncomfortable, and can be graduated to the needs of the case by varying the number and the size of the bands used. Any or all of the rubber bands can be removed at any time and replaced or changed without disturbing the original dressing. Children with very fair, thin, and sensitive skins may well be protected with

one or more layers of adhesive plaster placed over pressure points. Wool is superior to cotton for pressure pads, as it is more elastic and does not pack and harden so quickly.

Fractures of the clavicle are more difficult, and require a modified technic. This method is not applicable to depressed fractures, but they are rare, and generally are caused by direct violence. The most frequent site of fracture is in or near the middle third, and the treatment is comparatively simple for this region. But one pressure splint is used. It should be oval in shape, slightly curved, and long enough to extend a little to each side of fracture. The splint may be cut from tough splint cardboard, split sole-leather, or a thin plate of metal. It must be padded, of course, and held in position over the site of the fracture with adhesive plaster tape. The pressure is applied with rubber bands, in loops of adhesive tapes, stretched tightly over the splint and held by means of adhesive tapes applied to chest and back. The forearm should be placed in a sling.

The details of this procedure need some elaboration. It is well to first apply a strip of adhesive plaster, from two to four inches in width, from the costal margins in front to within an inch of the clavicle, and another similar strip to the back, from the waist up. These plasters are for the purpose of providing large tension areas, to reduce creeping to a minimum. They should be applied from below upwards and under tension, to avoid wrinkling under an upward pull. It is on these tension plasters that the tapes carrying the rubber bands are applied, with extra tapes, in the form of an inverted V, to distribute tension. The tapes carrying the rubber bands should have the inner parts of the loops surfaced so as to be non-adhesive, and pinned with a small safety-pin, to avoid creeping. All rubber bands should be held in position with adhesive tape; and wherever possible adhesive plaster under tension should be bandaged for an hour or more, to insure good adhesion.

The treatment of fractures at the acromial end is the same as for fractures of the middle third.

A fracture near the sternal end requires a narrow splint with a pad, as heretofore described, with a long lower end extending diagonally across the sternum and held firmly with adhesive plaster. The upper end of this splint should extend about an inch above the fracture. The rubber bands are attached to upper end of



splint and from there to the back in the manner previously described. In some cases a hinge in the splint, just below the pressure pad, is necessary, in order to secure pressure in the right direction. These details may be wearisome, but they are essential for satisfactory results.

I have been able to use this treatment in fractures of the metacarpals, radius and ulna, humerus, clavicle, tibia and fibula, and femur—all the long bones in the body, excepting the phalanges, metatarsals, and ribs. While this type of fracture of the phalanges and metatarsals does occur, I have never seen one. Greenstick fractures of the ribs need only a supporting bandage or adhesive plaster.

This, in general, is the method I have used with entire satisfaction for twenty-eight years. I have further evidence that the method is worth while in the fact that Dr. Wesley Grove Vincent, of New York City, published a paper on "Greenstick Fractures of the Forearm" in the *Journal of the American Medical Association*, January 12, 1918. His method, as I remember it, is the same as the one just given. Very likely many others have used a similar treatment, it seems so very simple and natural.

Now, the application of this method to treatment of dislocations of the clavicle may be taken up. These dislocations are unique in being among the easiest to reduce and the most difficult to retain in position. Their treatment, after reduction, has really been described, as it is the same as that of greenstick fractures near the sternal or acromial ends. So the part of this discussion that will be of most interest to you will be brief.

The pressure splint for either end of the clavicle must be placed directly over the reduced dislocation. Patients with sternal dislocations should be kept on their backs for at least two weeks, and have full dressing on for three or four weeks.

Dislocations at the acromial end are much easier to control. They should be dressed in position as for ordinary fractures. I can see that in some cases of sternal dislocations this position might be necessary also. The adhesives and splint should be applied with shoulder in position, or the plaster will be wrinkled and the splint misplaced when the shoulder is put up and back. In three or four weeks the forearm may be carried in a sling with dressing off.

My experience with dislocations of the clavicle

has been limited to three cases; therefore I am unable to speak with much authority, but I have the feeling that practically all recent cases can be cured without an open operation. All injuries of the clavicle are fussy cases, but even after operation a dressing is required that will immobilize the shoulder.

You may be interested in a report of the outcome of my cases. They were all seen within the last five years:

CASE 1.—Farmer's son, aged 17. Dislocation at sternal end. This young man's injury was the result of being thrown to the ground while leading a horse. Outcome, perfect.

CASE 2.—Man of 45, mason by trade. Dislocation at acromial end, caused by a motorcycle accident. Outcome, perfect.

CASE 3.—Retired farmer, aged 71. Dislocation at sternal end, caused by a fall from a load of hay. Result, failure.

In spite of my best efforts at persuasion I was utterly unable to control the patient. On the fifth day his wife telephoned me that he disappeared, and she found him in the basement sawing wood. She added, "I think there is no use trying to do anything with him." I agreed with her.

The literature on the subject of dislocations of the clavicle is very interesting reading. It shows that many surgeons have had difficulty in holding these dislocations in place, and they have devised various means to this end, some of which have been successful. One method used in a case of sternal dislocation, which seemed fairly rational, was to apply a spring truss with the pad placed over the sternal end and extending around to the back, the strap being brought up and snapped on the pad, the same as it would be applied in a case of hernia. Of course, adhesive plaster has been used to hold these in place with pads under the plaster. The only difficulty with adhesive plaster is that it creeps, it is bound to do so if under tension, and in a short time your pressure is relieved, while with the rubber bands under tension we have a constant pressure which decreases only very slowly from creeping, and in case the bands lose their elasticity they can be replaced, or if the pressure is not sufficient more can be applied. For acromial dislocations I must say it is very efficient from the limited experience I have had with this type of dislocation. I find that it controls the acromial dislocations more effectively than the sternal dislocations.

#### DISCUSSION

DR. LYMAN R. CRITCHFIELD (Kenmare, N. Dak.):

1. I would heartily endorse the use of the wool

pressure instead of cotton pads to lessen the risk of causing serious injury to the tissues lying between the pad and the bone. I have never used the rubber bands to maintain continuous pressure as described but the method certainly sounds good and, it seems to me, could be used successfully, many times.

2. One word of caution might not be amiss at this time, and that is, be sure that the greenstick fracture is greenstick and not one that has been impacted.

3. Dr. Fulton makes a good point regarding dislocations of the clavicle when he cites the patient who did not follow instructions. Many of these

cases of dislocation of either end of the clavicle have a long period of partial disability. This is due to the nature of the injury and also, in nearly every case, to the patient's not allowing the injured part to rest for a long enough time. The fact that nearly all of the cases of clavicle dislocations come from the class of active strong men, such as laborers, miners, section hands, foot-ball players, and so forth, makes the matter of sufficient rest very difficult. The practice of putting these injuries at rest and maintaining rest by a pressure dressing and plaster cast, aids materially in impressing on the patient the seriousness of his injury and is, as well, essential to the shortest and surest convalescence.

## TRAUMATIC AND BONE SURGERY\*

By ROGER T. VAUGHAN, PH.B., M.D., F.A.C.S.

CHICAGO, ILLINOIS

### CASE I—INTRACAPSULAR FRACTURE OF THE FEMUR

I presume you are all familiar with the Whitman cast and its method of application in fracture of the hip. This particular case is intracapsular. The patient has now been up in the cast five and one-half weeks. In the picture taken on admission you will see that the line of fracture lies very close to the head. The line of fracture in the radiogram almost unites the two lips of the acetabulum. The second picture was taken through the cast and the line of fracture is not so definitely seen. You will note that the approximation of the fragments is at least fully as accurate as before the cast was applied.

There are many methods of treating fractures of the hip. In my estimation the Whitman cast or one of its modifications is the most efficient. I suppose many of you have seen cases treated with the long Liston splint, with sand-bags or overhead traction. If you have tried those methods I think you will all prefer the Whitman cast. To apply the cast we put these patients up on the Hawley table with both legs extended and fully abducted to at least a right angle. In the intracapsular fractures I aim to get a little more than full right-angle abduction. Then we maintain that right angle by running the cast as high up as the top of the sternum and as low down as the toes. Thus you have a plaster lever, the fulcrum of which is at the hip-joint, one lever arm being the patient's fractured lower extremity, the other lever arm being the patient's

trunk. The more nearly you get the lever arms of the same length the more perfect the leverage. The correctness of the principle, much stressed by Whitman, appears now to be pretty generally accepted. The other limb is left entirely free.

We have here an apparatus whereby the patient can help herself. (Balkan frame with ropes, pulleys, and counter-weights.) The uninjured leg is entirely free. She can use it to help herself or raise herself. Note how we counter-balance the cast and part of the patient's own weight with sand-bags, bricks, or sash-weights. We have this patient counter-balanced with sand-bags, putting on sufficient weight so that we counter-balance the entire cast and part of the patient's own weight. So, unless too feeble, the patient can move herself from side to side of the bed. She can lift herself and change her position sufficiently to prevent formation of a sacral bed-sore. Furthermore, when the bed-pan is slipped under the patient, it does not take nearly as much exertion for the nurse to raise her as it does if you do not counter-balance the patient.

A great advantage of the Whitman cast is that as soon as you have the patient in it and rigged up with overhead apparatus of this kind the patient is free from pain. You know how painful the use of the bed-pan is for such patients when the other methods are employed in treating hip fractures, and how some patients will pass evacuations in bed rather than use the bed-pan. This is an additional factor predisposing to the development of bed-sores in patients not treated with the Whitman cast.

\*Presented at the annual meeting of the Soo Surgical Association.



As soon as you have the patient in a cast like this you can have her sit up. When we have the help and the internes have the time, we get the patient out of bed twice a day and seat her on a stool. She sits with the legs away out in this position (indicating), which is not extremely comfortable or luxurious, but it is a welcome change of position and helps to avoid pneumonia.

At present I am not using the original Whitman splint, but a modification of it which consists of substituting a double Scultetus binder for the posterior plaster. The turns of plaster are passed over the front of the chest and abdomen and are caught on the front one of these alternate pairs of Scultetus tails. When one series of turns is completed, then we put in our molded splint plaster reinforcements. After they are applied another series of turns of plaster bandage covering chest and abdomen is run over the Scultetus tails, and then each pair of tails is tied. That fastens the bandage. All this is simple and easy to do, but difficult to describe lucidly. Then we leave these tails long for fastening our overhead extension and counter-balance. We can actually counter-balance these patients too much. Too much counter-balance transfers the point of weight-bearing from the sacrum to the lower border of the Scultetus, which is not desirable. If allowed to continue long enough I believe it might produce a pressure sore. Proper counter-balancing gets the weight off the sacrum and therefore prevents sacral bed-sores. Too much counter-weight lifts them off the bed and floats them in the air. These patients can use the bed-pan whenever they desire without effort or pain if properly counter-balanced.

It is more work for the attending surgeon to put these casts on than to tell his interne to put on sand-bags; but the cast is far easier for the patient and nurses. If these patients do not get bed-sores they seldom get pneumonia. Some of these aged patients have involuntary evacuations. We "float" such patients and keep a bed-pan underneath them constantly. These patients in casts get pneumonia distinctly less often than when treated by any other method which I have tried.

The next best method of treatment for hip fracture is the double abduction plaster spica with plaster turns around the pelvis, but no higher than the waist and then on the fractured limb running clear down to the foot like Whitman's cast and also down to the knee on the

well limb. But such a patient cannot sit up, and cannot readily be counter-balanced, with consequent greater risk of sacral bed-sores. He is less comfortable in bed than the Whitman cast patient and cannot be got out of bed onto a stool or high chair.

#### CASE II—INTRACAPSULAR FRACTURE OF THE FEMUR

This patient came to us two and one-half weeks after the accident, the doctor taking care of her at home in the good old-fashioned way. He let her lie in bed because she was "too old and feeble to put in a splint." These *x*-ray pictures were both taken before we put her in plaster. This patient is put up the same way as the other case shown, with the Scultetus substitute for the posterior plaster. We do not always cut out the cast at the heel, but the heel is sometimes a pressure point, and if painful must be cut out. I put in two little rolls of sheet-wadding alongside the tendo Achillis to protect the heel from pressure. The position in which we put the limb is complete abduction with slight inversion.

On entrance to the hospital this patient had a bed-sore that was suppurating, for she had been lying flat on her back completely helpless for two and one-half weeks. This sore is now smaller than it was, having very nearly granulated over, and it will soon be healed completely. We have removed most of the pressure from the sacral area and can take it all off by using enough counter-balancing. What other method of treating hip fractures is able to heal bed-sores once they have formed?

It is easier for patients to lift themselves on a high Balkan frame than on a low one. On these 8-foot frames we put two pulleys, and the patient "climbs" this rope by grasping the loop and knots and thus raises herself to change her position.

The stool she is to sit on must be a high one. (The patient is seated on stool by side of bed.) As stated, it is not luxurious, but it is a welcome change. The patient leans back against the bed when you get the bed fixed so that it will not roll back on its casters. You can get these patients up and keep them up for half an hour at a time. They are nearly all feeble old men or women like this patient. Down in our ward we do not get these patients much under 60 years of age. Relatives will say, "She is too weak to stand this cast," and I reply, "She is much too weak to stand bed-sores and continual

pain, to suffer with the bed-pan three or four times a day; she is so weak that not only will she probably get no union in the fracture, but will be unable to prevent the development of bed-sores and subsequent sepsis and pneumonia without the cast." When as weak as many of these aged patients are, they do not long survive prolonged pain and sepsis. They must be put up in a cast in order to conserve the strength they have. They must be turned in bed every hour or two and sat up once or twice daily. Under this method of treatment, just ask the patient whether or not she feels better after the cast is applied, or whether she would like to have it removed. The relatives may be of divided opinion, but the patient *knows she wants that cast!*

#### CASE III—GUNSHOT WOUND OF THE ABDOMEN

I have done something here I never did before—something contrary to usual good procedure—and "got away with it." At a recent meeting of the Chicago Surgical Society Dr. L. L. MacArthur gave a talk regarding cancer cases in which for some reason he did not follow standard procedure, and yet achieved satisfactory results. This case is somewhat similar, but is a case of trauma, not of cancer.

I present here a young man who came to us last Monday night (five days ago) with a wound at the left lower rib border, a small puncture gunshot wound. He was shot *thirty hours* before admission. We at once took him to the x-ray room and fluoroscoped him to mark the location of the bullet. In spite of subsequent scrubbing of the abdomen you still can see the remnant of one of our ink marks at the level of the umbilicus on the right side of the abdomen. On deep respiration the bullet moved up and down when seen in the fluoroscope, and we could tell from its size that it was of small caliber, probably 22. The patient did not know he was shot when the shooting occurred, as he was drunk at the time. After coming to the hospital he vomited blood, so we felt certain his stomach had been perforated. We knew the bullet was lying within the peritoneal cavity because we had seen it move up and down on the fluorescent screen with respiration. We could not tell at the time whether the bullet lay inside or outside the lumen of the bowel. The next day (Tuesday) we fluoroscoped him again and found the bullet still in the same location, which tended to make us believe it lay outside rather than inside the bowel. If it did lie outside, then

there must have been more than one perforation; if inside the bowel, it might have penetrated only the anterior wall of the stomach and remained inside to pass along later into the bowel. We have not fluoroscoped him the third time yet, so we are not absolutely certain of the bullet's location now in reference to the lumen of the bowel.

When he came to us thirty hours after the accident he had a temperature of 99+°; he had no abdominal tenderness except just at the wound of entrance, and never has had any more. He has very little tympany now and has never had more since entering the hospital. Peristaltic sounds have always been present and the patient has had no nausea, vomiting or fever.

As the bullet was small, on first examination I reasoned this way: "If at the end of thirty hours he has no diffuse peritonitis, and I can demonstrate that he has none, the probability is that the small hole in the stomach and also in the bowel, if there were one or more in the bowel, has become plugged with mucosa." It also seemed to be well within the bounds of possibility on that first night that the bullet might lie in the lumen of the bowel and only a single wound be present and that in the anterior wall of the stomach. I believed, therefore, that since he had no peritonitis at the end of thirty hours he would have none subsequently if I left him strictly alone.

I had one case of gunshot wound some years ago in which I could find at operation only one wound in the anterior surface of the duodenum and no bullet in the patient on subsequent fluoroscopy. This bullet must have stopped inside the duodenal lumen and later have passed in the stools. In one patient I had some months ago, the bullet perforated only the anterior stomach wall, was vomited up and recovered from the vomitus!

For the reasons cited I did not operate on this patient. I hoped he would not give consent to operation, and I was put in a difficult position when he said he had perfect confidence in me and whatever I wanted he would let me do. Had he developed a severe peritonitis subsequently and died, I should have had to explain to the coroner why the patient was not operated on, because we *always* operate on these cases since they are usually seen early. But it seemed to me this late case was exceptional, for were I to go in I might disturb the peritoneal walling off that had already occurred and make him worse rather



than better. He had a little fever, a little tympany, and probably had a little well-localized peritonitis around the wound or wounds. If I operated and separated these adhesions I might do more damage than good by enabling the localized infection to spread. Perhaps that is the reason why most late operations for bullet wounds are not successful. If we do not operate on them within ten or twelve hours at the latest we get few recoveries. Our good results are mostly all in patients operated on during the first few hours.

Therefore, for all these reasons put together I did not operate, and so far the result is successful. Whether I shall have success in the next case I manage thus I do not know; but this was the type of bullet wound of the abdomen most frequently seen in the Boer war, and the English surgeons during that conflict treated nearly all such abdominal bullet wounds without laparotomy and yet with a very considerable percentage of recoveries.

#### CASE IV—EPIPHYSEAL LESION OF THE OS CALCIS

We have here an epiphyseal lesion of the os calcis in a little girl ten years old. Note this dusky swelling over the heel from which pus oozed some days ago. The opening has since epithelialized over, and this little swelling now fluctuates. I think some more pus will come out later. She has no fever at the present time. On the 9th of October (13 days ago) she had a temperature in the morning of 99.4° and at noon of 99.2°. The discharge, whatever the etiology, will probably show a mixed infection now. The discharge has not been examined microscopically, and may not show anything except cocci.

I show you here the radiographs of the case.

There is an epiphyseal lesion of the os calcis. The os calcis ossifies in so many different ways that it is difficult to determine what is normal in a given case, but I should lay diagnostic stress here on the fact that the center of the epiphysis which you see as a line of density on the lateral plate, and as a somewhat rounded area at the left of the midline on the anteroposterior plate, is of greater density than the rest of the os calcis. There is no periostitis present. We know that children frequently react to tuberculous infection with just such a sclerosis of bone, while as a general rule adults show caries and bone absorption. From this fact and from the granulomatous appearance of the heel lesion I presume that this is probably tuberculous. On further bacteriologic examination we shall probably be able to determine whether it is tuberculosis or not, but to me it looks like a granuloma and the x-ray seems to point to a tuberculous sclerosis of the calcaneal epiphysis.

#### CASE V—OSTEOGENESIS IMPERFECTA

This case (Negro girl about six years old) looks something like a case of very marked rickets. There is softening of the bones somewhat like rickets, but also a diminution in thickness and density and a tendency to spontaneous fractures. This is a case of osteogenesis imperfecta. You see a recent healed fracture of this femur and an old healed fracture in the lower end of the other femur. The bones in the chest are all very thin and extremely fragile. The child has had multiple spontaneous fractures of the extremities. That is a picture we do not see with rickets, but it is characteristic of osteogenesis imperfecta. These patients keep on having spontaneous fractures so long as they live and life is not often prolonged to adult years in such well-marked cases as this one.

## CORN KERNELS IN THE AIR PASSAGES\*

By FREDERICK H. ROOST, M.D.

SIoux CITY, IOWA

Accidental entrance of corn kernels into the air passages is unfortunately of frequent occurrence in this locality. The occurrence is not always recognized early, and, I fear, too often the accident, generally in small children, goes unnoticed, ending fatally in pneumonitis.

In comparison to other objects inhaled accidentally, the corn kernel stands out preëminently to the bronchoscopist here because of its frequency, and, in my opinion, is important enough for special consideration.

When recognized early, the removal of a kernel of corn from the bronchus offers no great difficulty, and is usually followed by a rapid and

\*Presented before the Sioux Valley Eye and Ear Academy, Omaha, Nebraska, July 9, 1923

uncomplicated recovery. Unlike other leguminous bodies, the corn kernel is apparently free from toxic qualities, nor does it disintegrate quickly from absorption of moisture. Furthermore, it swells only slightly even though left in situ for a number of days. Recently a corn kernel removed on the eleventh day was still practically normal in size and consistency, though constantly bathed in watery secretions.

The accident seems to occur most frequently in children between the ages of one and three years. In two of our cases the ages were seven and ten months, respectively.

In some respects the corn kernel presents some distinctive features. Being a firm, smooth body, it may lodge in the lung for a considerable period without giving rise to symptoms sufficiently alarming to be noticed by a child's attendants. Choking or spasmodic coughing shortly following the accident is always present, we note, and is generally followed by a quiescent stage which may last until we get lung conditions consequent upon prolonged bronchial obstruction.

Another difficulty is that the *x*-ray, usually affording us the most efficient of diagnostic aids, is more or less valueless, as the corn kernel produces no shadow. However, there may be exceptions, as you will see in the diagnostic film I herewith present. The patient was a child eleven months old and thin chested. Note the lodgment of the kernel in the right bronchus, in which place it was found and removed. Inasmuch as a good skiagram is valuable in detection of lung pathology, it should always be obtained.

Careful history of the onset of the accident is important. As before mentioned, inquiry has invariably brought out the fact of choking and spasmodic coughing and; less frequently, cyanosis. This coupled with observation or suspicion that the child was playing with corn, was the sum total in diagnostic signs presented in a number of cases. In a case from another city, where we were consulted by phone, a very competent general practitioner after careful examination of the chest and observation over night in the local hospital, allowed the impatient parents to take the child home to the farm, where shortly afterwards he had a choking spell which resulted fatally.

We recite this case to emphasize the fact that at certain periods following the accident, lung signs may be difficult to elicit. The child is usually very young, and there are no witnesses to the accident and early symptoms. It is the

alert practitioner that consults the bronchoscopist early in the corn kernel cases.

At all times in handling a patient with a corn kernel in the lung there is a caution that we wish to repeat. *Do not invert the patient as a diagnostic test.* At least two patients were brought to us that had had this experience at the hands of their physicians. A fatal glottic spasm may ensue. Our diagnostic search must be limited to history, respiratory signs, and skiagrams. These may be quite clear and definite, or, as stated before, quite obscured and doubtful. Given the slightest suspicion, an endoscopic examination should be made. Had this been done, the fatality quoted above would probably have been prevented.

The place of lodgment is influenced to some extent by the size and contour of the kernel. In our cases they were all lodged in the main right or left bronchus. In two cases only broken half kernels were found. That the kernel always lodges with the germ end up does not hold true in our experiences. Either end may present. Whatever the manner of its inhalation, it finally beds tight in one or the other bronchus. It is perhaps considerably influenced and further wedged by the bechic movements of the lung and the change of air pressure in the obstructed air channels.

The technic of removing corn kernels does not differ from that of removing other leguminous bodies, such as peanuts or beans. The kernel is firm, and, once firmly grasped, is very easy of removal. It has the further advantage in that it presents a rectangular end affording sagittal space on the sides for placing the blades of the forceps. Jackson's advice in taking advantage of this is especially applicable here. Our favorite forceps has a straight fenestrated tip, whose slender jaws, when open, lie flat against the lumen of the bronchial tubes and gently envelop the leguminous body for a firm hold. As we have remarked, the leguminous body intruder is found most often in infant patients. This means making use of the 4 mm. tube if the upper route is chosen for delivery, and the upper route, regardless of age, affords ample room if the bronchoscopist is sufficiently expert. This small tube naturally requires a small shank and tip for the forceps. The Jackson instrument answers this requirement for us.

The very fact that the small tube is so generally required in the extraction of a leguminous body calls for special training with the small



tube. The suggestion of painstaking practice with small calibered rubber tubes, in which leguminous bodies have been inserted, is a good one. Certainly the mechanical problem to be met with in these cases should be thoroughly worked out beforehand, and then at the time of extraction having at hand the necessary and complete equipment, in addition, there should be co-ordinated team-work. To fit an improper forceps to a leguminous body may result in either reducing the same to small fragments, forcing it further down, or in damaging the lung tissue, thus changing a favorable situation to an unfavorable one.

Bronchoscopic science has reached a degree of advancement and availability where every victim is entitled to all the niceties of strategy and manipulative skill requisite to successful recovery. Failure to remove corn kernels and other leguminous bodies, results fatally in a short time. A number of such deaths, due to the inhalation of corn kernels, have occurred in this locality, fortunately none in our practice.

The Boyce position affords us the most convenient posture, inclined slightly to the Trendelenburg position when possible.

Ether anesthesia is used when it seems to be required, and then only during the period of introducing the tube. Personally we have a feeling that no anesthetic should be required in the procedure, were manipulative skill sufficient to make one feel secure in dispensing with the same.

No attempt has been made in this paper to go into details of general bronchoscopic technic, except as it touches the matter of leguminous bodies. Conditions brought about in the lung by foreign bodies of any nature or conformation have certain features in common, but it is our experience that leguminous bodies, such as the corn kernel, are more easily overlooked in the early stages, exact place of lodgment in doubt, and because of their obstructive tendencies, are more conducive to quick fatalities.

Also it appears to us that leguminous cases are more beset with diagnostic difficulties. Although suspecting the presence of the foreign body, its place of lodgment is hidden. Whether left or right lung, may be in doubt.

In a ten months' old child referred to us, the accident occurred during a siege of bronchopneumonia. The kernel was located and removed

only after aspirating and swabbing both bronchi free of troublesome secretions. Another case presented the problem of a conflicting history of the child being seen playing with both corn kernels and carpet tacks. The skiagram showed a fictitious outline of a large-headed tack in the trachea; also, a bloody trail of secretion led into the right bronchus, but none was found there, and a continued search located a roughened half kernel of corn in the bottom of the left bronchus.

And to the casual bronchoscopist the necessity of operating through infant-sized tubes with the foreign body somewhere in a well of bronchial secretions, may bring on a situation of stress that requires courage and ingenuity to carry through to a successful issue. Yet, the properly prepared operator will, we believe, have nearly 100 per cent success if forehanded with the proper equipment and manipulative practice and skill.

## BOOK NOTICES

**ESSENTIALS OF SURGERY.** A text-book of Surgery for Students and Graduate Nurses and for those interested in the Care of the Sick. By Archibald Leete McDonald, M.D., Johns Hopkins University. Second Edition. Cloth. Price, \$2.50 net. Pp. 293, with 49 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

There have been few books written on *Essentials of Surgery*, for nurses. Dr. McDonald's book is an excellent book to be used by students and instructors as a reference book in connection with surgical lectures.

Surgical nursing is thoroughly covered in this book of fifteen chapters. The first three chapters cover the knowledge of bacteria with a review of bacteriology, showing the need of a thorough knowledge of bacteriology and its application to surgical nursing. The fourth chapter defines and classifies tumors and new growths simply and clearly, making it an excellent reference for gynecology as well as surgery.

The definitions, classifications, and illustrations are very clear throughout the book. Good clear illustrations aid the students in understanding many of the facts given in lecture.

The students usually have not had the opportunity of seeing operations before having surgical lectures.

The value of any book to a student nurse is, that it contains enough essential material for use while the nurse is a student and that it can be used as a reference book after she graduates.

—K. E. D.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

JANUARY 15, 1924

## THE ANNUAL MEETING OF THE HENNEPIN COUNTY MEDICAL SOCIETY AND THE PRESIDENT'S ADDRESS

The Hennepin County Medical Society, at its annual meeting December 7, 1923, celebrated its sixty-ninth annual meeting, and preparations are on the way to celebrate its seventy-fifth birthday in 1930. Dr. Fred L. Adair presented the presidential address, which is to be printed in THE JOURNAL-LANCET and should be read by every physician interested in the progress of medicine.

Dr. Adair covered a very wide field in the history of medicine; and for his principle theme he selected the addresses of past presidents, commenting on them, criticizing them mildly, but more deftly criticizing the medical society of Minneapolis for not doing the work they had talked about and expected to do from forty years ago to the present time. Many good suggestions were made that, if promises had been kept, would have put the Hennepin County Medical Society in the lead of any similar organization in the state. But because medical men are easygoing and look forward with joyous anticipations to the carrying out of a program, they, like many other organizations, forget the necessity of following up the plan. It is interesting to note, too, the similarity of the work of the men of fifty years ago and those of the present time. It is also interesting to know and to understand that most of the medical work in

medical societies is done by a comparatively few, and these few are the men who are vitally interested in the success of the organization. This, perhaps, is more definitely demonstrated by a comparison of the work of the men who were interested years ago and the present-day methods of conducting a medical society. To be president of the Hennepin County Medical Society, with its 491 members, means work,—hard, and continuous work, with endless meetings, conferences, and association with other organized bodies. The man who becomes its president must make up his mind to give up his time, his services, and in no small measure his practice, in order to do this work properly. And, as Dr. Adair suggested, there ought to be some means provided whereby the president should be relieved of some of the detail work in order to keep in front of him the greater problems that must inevitably be met.

The necessity of continuing our influence with public utilities and with other activities, both industrial and business, was strongly emphasized—that too often the doctor hesitated, or quibbled over the ethics in a problem and was lost in the confusion that he himself was responsible for.

The Executive Committee alone has many meetings each year, and is responsible for the success of the program, the meetings, and the incidental affairs which arise in the work of the Society. The members of the Board of Censors have, as they know, a disagreeable task to perform. They have to meet, either by card or letter, every man who seeks admission to the Society, and sometimes where the record is not good they have to arrange for personal meetings with the applicant. They sometimes bridge over difficulties and chasms and thus help on the work of the whole organization. The Board of Trustees and the Committee on Permanent Policy have to do with the present financial status of the organization and with the future policy. Then, too, it was interesting to hear the report of the Entertainment Committee and to know that by getting men together for an annual banquet, for golf meets, and bridge parties they learned to know one another better—often finding the man who was looked upon as rather reticent to be a fine fellow, and so on. The Budget and Finance Committee, of which the popular secretary, Dr. R. T. LaVake was chairman, presented all of the necessary expenses; and in his capacity as treasurer of the Society, Dr. LaVake gave a very good outline of what it cost to run an organization of this sort. Con-



sequently, if the dues are raised a dollar, men must make a little extra endeavor to meet the increase because it is needed, not only for the Society, but particularly for the library in which the Hennepin County Medical Society has much pride.

One of the most important committees is the Committee on Education and Publicity, and this we will hear from during the present year. It has to do with medical information and educational articles furnished to the daily press under the auspices of the committee of the Society, and not by an individual. It has to do with broadcasting information that is educational from a medical point of view.

The Society is to be congratulated upon the successful work of Dr. Adair, and by its election of Dr. C. B. Wright as its future president the same good endeavor will be maintained.

### STAFF MEETINGS AND MEDICAL MEETINGS

The new year seems to have opened auspiciously with medical meetings, which include the usual staff meeting; and it was the pleasure of the editor to attend a hospital staff meeting the other day at which many men endeavored, by one process or another, to introduce various resolutions, suggestions, and other incidentals that have to do with a hospital. The formation of a new staff for a new hospital is not an easy problem, particularly when there are factions endeavoring to conduct a semipolitical-medical campaign. The meeting not only afforded a good deal of entertainment, but it brought out the difficulties in organization, either in staff work or hospital work. As a matter of fact, it has been found by various business concerns that a small unit can do much better business and do more business in a reasonable time than can a heterogeneous mass of men who are connected in a business enterprise. The result of such endeavors is disorganization rather than organization. Although we are in hearty sympathy with the efforts of the hospital to promote the most friendly feeling among professional men it is quite another matter to expect it, even though the political factions are personally friendly. The average medical man knows comparatively little about the conduct of a hospital and its relation to the profession or the community, but he wants to say something about it anyway so that his voice will not be lost in the uproar.

The editor also attended another meeting, a few nights before this one, which was scheduled to begin at 7:30 P. M., but which actually began at 8:30 and was finally concluded at 11:30, after conducting a good deal of business, which was more or less political rather than medical.

If staff meetings are to be classed among those that endure the longest and take up much of a man's time, they will not be able to continue successfully. As was said in the foreword of this editorial, the staff and the hospital conducted by a small unit can get down to business and know what they are going to do and transact their business in the usual business manner. One hospital in Minneapolis has very clever staff meetings. They are called to order at a dinner at 6:15, and the by-laws of the staff make it imperative that the meeting be over and concluded at 8:00. In this way a staff meeting can be made a success, as well as a pleasure, and it is not drudgery. This may apply to the conduct of a medical society, as well, but it is less likely to be so confusing because, as a rule, the medical society has an organization behind it and has rules for the guidance and conduct of its business. And even though the meeting be an annual meeting in which many reports are made and the president's address delivered, it need not consume more than two and a half hours. Here again the same question comes up as to who is to conduct a medical society, and many are the criticisms from outsiders or from men who never contribute one thing in the way of committee work or literature or case reports to the society, but complain the loudest. They, in fact, rarely attend a meeting, and they frequently disapprove of the dues. The argument generally is that the meetings are held by a combination of specialists, which is not true at all. The meetings are held for the general improvement of the medical profession; whether a man be a general practitioner or a specialist he can get something out of each meeting if he will. The only way in which a medical society can be successful and attendance large is to get every man to keep himself personally interested in the work.

### DR. BRUCE W. JARVIS IN CHINA

Dr. Bruce W. Jarvis and family, of Minneapolis, who left here on November 30, after visiting Dr. Jarvis' parents, Mr. and Mrs. C. W. Jarvis, Sr., and brothers, M. B. Jarvis and C. W. Jarvis, Jr., in Seattle, left San Francisco Tuesday, December 11, on the "Korea Maru"

for Hong Kong, en route to China, where Dr. Jarvis will become a member of the medical missionary staff of the North China Conference of the Methodist Episcopal Church.

Dr. Jarvis will be stationed at Taianfu in the province of Shantung, which is an important export center and is near one of China's five sacred mountains, where thousands of pilgrims from every part of North China come annually to worship. It is also an influential student center.

If, with Taianfu as a center, a circle with a radius of fifty miles be drawn, the circumference will enclose a territory in which there is no missionary hospital or dispensary and only one Chinese physician of Western training. It is a low estimate that this medical center must serve a population of 4,500,000 if they are to be served at all.

Since 1904 the Methodists have had medical work in Taianfu, but in old and inadequate buildings. The present plan is to build a hospital for both men and women, in which the Women's Foreign Missionary Society and the Board of Foreign Missions shall co-operate. The present staff includes one Chinese physician, a graduate of the Peking Union Medical College, a dentist, and a male nurse trained in the Methodist hospital in Peking.

Dr. Jarvis, after his internship in the University Hospital in Minneapolis became associated with Dr. W. A. Jones and was in the office with him for six years. With his association in the University Hospital and the Minneapolis General Hospital, as well as the special hospitals for the care of mental and nervous cases, Dr. Jarvis is ready to enter into a new unit which is being inaugurated in China to take care of nervous and mental diseases in the hospital where he is to reside.

Dr. Jarvis is a courteous and kindly man, and he is very much interested in neurology and psychiatry. He will be the American representative on the staff. He is a graduate of the University of Washington and of the Medical School of the University of Minnesota. He has been practicing in Minneapolis for six years and has been a lecturer on the staff of the University Medical School.

---

#### DR. JOHN HUNTER ADAIR ✓

THE JOURNAL-LANCET records with sorrow the death from pneumonia of Dr. John Hunter Adair, of Owatonna, Minnesota, which occurred on Sunday, January 6, 1924. Dr. Adair was

one of the adorable men in the state. Everyone who knew him looked up to him as a man who was always a friend and one who always endeavored to do his duty toward his confreres and toward his associates; and the young man had as hearty a welcome from him as did his old friends.

Dr. Adair was one of the founders of the Minnesota Valley Medical Association back in 1882. This association was an active organization composed of the Minnesota Valley practitioners, but it soon extended its operations into other counties and ultimately became a large enough society so that its name was changed to The Southern Minnesota Medical Association. Very rarely was Dr. Adair absent from one of these meetings, or from the state meetings; one could always count on his presence because he had an interest in the work.

Dr. Adair's acute illness dated back about nine months, and he practiced up to within a week of his death so that he died like a gentleman and went out in full glory and with the warm appreciation of all men who knew him. Those who knew him best will remember him as a cheerful and joyous man, and a doctor of the old school who kept up with the advances in his profession.

John Hunter Adair, M.D., son of Robert and Flora Adair, pioneers of Steele County, Minnesota, was born in Havana Township July 26, 1858. He attended the district school, Pillsbury Academy, and Carleton College (1879-80), and was graduated from Rush Medical college in 1883. He was married September 15, 1887 to Mary Davidson, whose death occurred January 22, 1917.

With the exception of absence while attending school and his first year of practice in Winnebago City, his entire life was spent in Steele County. He was an active member of the Steele County Medical Society, the Southern Minnesota Medical Society, President of the State Medical Association for the year 1920, Fellow of the American College of Surgeons, and in addition to his work as general practitioner, he was physician of the State Public School at Owatonna for thirty-four consecutive years.

He was a member of the Presbyterian Church, of the K. P. Lodge, Workman Lodge, and Rotary Club. He always took an active interest in Civic work, was a member of the Library Board, and member of the present Charter Commission at the time of his death.

His decline in health dates from the death of his wife; and his strenuous work during the influenza year of 1918-19 undermined his strength greatly.

He is survived by two daughters, Mrs. F. R. Kerman of Berkeley, Cal. and Miss Catherine Adair of this City also one sister, Miss Esther Adair of this City.

---



## MISCELLANY

### IN MEMORIAM—DR. WARREN A. DENNIS

The Administrative Board of the Medical School of the University of Minnesota records with great regret the death of Dr. Warren A. Dennis, Associate Professor of Surgery.

Dr. Dennis died in the prime of life and in the full activity of his calling. Intellectually mature, with an orderly mind developed by constant study and broad experience, he had attained to a high place in the profession.

By those of us who knew him best, he will be remembered as much for his personal charm and his sterling worth as for his high professional attainments.

The story of his life is one of unassisted effort. Losing both father and mother at an early age, he was cared for by relatives, to whom, during all the succeeding years, he has made every remembrance. His years of study and graduation at the University of Wisconsin were achieved, in the main, through his own initiative. The work he did there is suggested by the fact that he stood high in Phi Beta Kappa. Two or three years of school-teaching furnished sufficient support to permit him to enter the Medical School of the University of Minnesota in the fall of 1893, from whence he graduated in 1896.

With an intense desire for knowledge, trained in study, experienced in the expression of thoughts, relatively older in judgment than his fellows, more fully appreciative of the curriculum, acknowledging the efforts of his teachers, stimulating them, by his earnest endeavor, his interest and his helpfulness in the affairs of others he immediately obtained and held a high position of esteem and respect not only among his classmates, but among the faculty and in the profession, with which he came in contact in future years.

He interested himself in medical affairs and wherever he went he won recognition. He was a past president of the Ramsey County Society and of the Minnesota Academy of Medicine, a District Councilor of the Minnesota State Medical Society and Secretary of the Western Surgical Society.

He held commanding positions during the two recent Wars; as Major Surgeon of the 15th Minnesota in the Spanish American War, and as Major Surgeon and Lieutenant Colonel of the 88th Base Hospital, with which he served in France during the World War.

Never physically robust, his lack of resistance was well known to his friends and associates. His interest in his work led him many times to physical exhaustion. It was this tendency doubtless that determined the too early end of his career.

His relaxation was largely along lines of study, particularly in the languages, developing a ready command of German, French, Spanish and Italian. To the abilities that made him a splendid surgeon were added the judicial qualities of mind which

marked him as not only a wise advisor but a true counsellor and friend.

The Medical School offers to his widow and children its sympathy and the assurance of its appreciation of the rich legacy of love and appreciation he has left to them and to his friends.

### OBITUARY NOTICES PRESENTED BY THE HENNEPIN COUNTY MEDICAL SOCIETY

#### JOHN MICHAEL EGAN

Dr. Egan was born at Osseo, Minnesota, January 5, 1883, the son of Mary Jane Ryan Egan and Edward Egan.

His father was a New York man, who moved west to become a rancher. Dr. Egan obtained his early education at the village school and his high school degree at Anoka. He obtained his medical degree in 1907 at the University of Minnesota. There followed a year's internship at the Minneapolis City Hospital.

From 1908 to his death he practiced continuously in Minneapolis. In 1912 he formed a partnership with Dr. W. J. Byrnes, which relationship was permanent. Dr. Egan was a general practitioner on the staff of St. Mary's Hospital, and a very active and hard-working man.

He belonged to the Catholic Church and was a member of the Knights of Columbus, the Ancient Order of Hibernians, the Benevolent and Protective Order of Elks, the Phi Beta Pi Fraternity, the Automobile Club, and the Golden Valley Golf Club. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

He is survived by a wife and four children.

He died suddenly, at his home, from acute dilatation of the heart, on November 30, 1923.

#### GEORGE WILLIAM KIRMSE

Dr. Kirmse was born February 26, 1883, at Dubuque, Iowa, the son of Cora Ritter Kirmse and William D. Kirmse.

His early life and education through High School was at Dubuque. He obtained his medical education at the University of Chicago and St. Louis University Medical School, graduating from the latter in 1907. After ten years of general practice at Clayton, Mo.; at St. Louis, Mo.; Smith Center, Kansas; and Frazee, Minnesota, he took up the special line of eye, ear, nose, and throat. His practice at Frazee, Minnesota, was as a partner of Dr. Edgar R. Barton, who became a member of the Hennepin County Society in 1919.

Dr. Kirmse prepared himself for special work by postgraduate courses of study at St. Louis University, New York Eye and Ear Infirmary, and Manhattan Eye, Ear, Nose, and Throat Hospital. He came to Minneapolis and became associated with Dr. George A. Kohler, with whom he practiced until his death.

During the World War he volunteered in the United States Navy and was commissioned a lieutenant in the Medical Corps. He maintained this connection after the war and was a member of the Naval Reserve at the time of his death.

He belonged to the Episcopal Church, the Elks,

the Automobile Club, the Y. M. C. A., and the Masonic Fraternity. His medical affiliations were the Hennepin County Medical Society, the Minnesota State and the American Medical Associations.

Dr. Kirmse is survived by his wife, Aldine Jacobs-meyer (Kirmse) and their two sons; by his parents and two sisters: Lillian Kirmse Christy, of Dallas, Texas, and Cora Kirmse Preitaner, of Dubuque, Iowa.

Dr. Kirmse was a great lover of outdoor recreation and especially hunting. It was on a hunting expedition that he met his untimely death, being drowned in Lake Sylvia, near South Haven, Minnesota, November 25, 1923. The exact manner of his death is unknown. With a cousin he was last seen in a boat on the lake during a storm. Both bodies were recovered after much search, several days after their empty boat was washed ashore.

#### D. EDMUND SMITH

Dr. Smith was born at Winona, Minnesota, December 20, 1867, the only son of Charles Henry Smith of Potsdam, New York, and Clarissa Maria Moody (Smith) of Canton, New York. There were two sisters,—Ruth Smith (See) and Mary Moody (Curran).

His father was a manufacturer who moved from New York to Minnesota, and from Minnesota to Illinois, where Dr. Smith obtained his early training. He completed the High School in Chicago and then attended Amherst College, graduating with the B. A. degree.

He took his medical degree in 1894 at Rush, going to Johns Hopkins for postgraduate work about ten years later.

In 1894 he came to Minneapolis as an interne in the old Asbury Hospital and had remained here in active general practice until his death, December 15, 1923. In 1896 he married Alice Clark Dyer, who died in 1919. One daughter, Esther, survives her parents.

He served at various times on the medical staff of General Hospital, St. Barnabas, and Asbury; was an active member of Westminster Presbyterian Church; belonged to the Chi Psi (academic) and the Nu Sigma Nu (medical) fraternities; the Six O'clock Club, and the Alliance Francaise. He was a member of the American Medical Association and Hennepin County Medical Society. He taught for a time at the University of Minnesota Medical School, about 1898.

Early in 1918 Dr. Smith entered the service of the American Red Cross with a commission of captain. In April, 1918, he was sent to France and stationed at Lourdes in the Pyrenees near the Spanish border. Here he found an opportunity for unique and extremely humane service. Being the only American doctor in the area, he established an American maternity hospital of sixty beds in which he performed a great and worthy service. He also attended the refugee men, women, and children of the five other hospitals of Lourdes, which had been taken over with all the hotels by the French Red Cross. At times he was the only physician in charge of all these homeless and starved people, whose numbers ran to five or six thousand.

Insufficient help, insufficient food, and lack of medical supplies made this service a terrible one.

Dr. Smith remained at this post until the end of the war and gave such unselfish and untiring attention to it as to permanently impair his own health. In recognition of his devotion to his duty during this period, he received from France the Order of the Reconnaissance Francaise, and from Belgium the Order of the Angel of Rheims.

The death of his wife and his own depleted physical condition after his arduous service overseas resulted in his death from a complication of diseases, December 15, 1923.

The Society is proud to have numbered him in its membership.

## NEWS ITEMS

Dr. W. F. Mart has moved from Sioux Falls, S. D., to Huron, S. D.

Dr. T. M. Stixrud has moved from Litchville, N. D., to Seattle, Wash.

Dr. Cecil C. Smith has moved from Beulah, N. D., to Mandan, N. D.

Dr. Bernard H. Simons, of Chaska, was married last month to Miss Adelaide Collins, of Minneapolis.

The Sioux Valley Eye and Ear Academy meets on January 22 at the West Hotel in Sioux City, Iowa.

The annual meeting of St. Paul Clinic Week begins to-day, and will continue Wednesday and Thursday.

Dr. H. B. Martin, of Harrold, S. D., has resumed practice after an absence of several months in California.

Dr. E. K. Pfaff, who recently sold his interest in the Community Hospital and his practice at Richmond, has gone to California.

Three nurses have been appointed to work in the four high schools of St. Paul, having supervision over the health of the 5,500 pupils in such schools.

The Twin City Shriners Hospital for Crippled Children is to have a convalescent home, which will give more room in the Hospital for children now on the waiting list.

Dr. D. W. Wheeler, formerly of the Trudeau Sanatorium, at Saranac Lake, N. Y., has been appointed assistant superintendent of Nopeming Tuberculosis Sanatorium, near Duluth.



Dr. B. D. Rasnick, who has been at the head of the tuberculosis work in the St. Paul Veterans' Hospital, has been transferred to a similar work in the Minneapolis Veterans' Hospital.

Dr. Thomas McDavitt, secretary of the Minnesota State Board of Medical Examiners, states that there are very few, if any, physicians practicing in Minnesota without proper licenses.

Dr. Carl E. Anderson, of the Swedish Hospital of Minneapolis, has purchased the practice of Dr. E. A. D. Jones, of Garretson, S. D. Dr. Jones expects to spend a year and a half in special study in the schools and hospitals of the East.

Dr. D. W. McDougald, formerly of Le Sueur, after spending a year and a half in postgraduate work in New York City, in eye, ear, nose, and throat work, has located in Minneapolis at Fourth St. and East Hennepin Ave. to practice his specialty.

Dr. Henry C. Cotton died in Minneapolis last week at the age of 83. Dr. Cotton was a graduate of Albany Medical College, class of '63, and was a veteran of the Civil War, and came to Wisconsin soon after the war. He practiced at Prescott, Wis., until a year ago.

At the annual meeting of the Waseca County Medical Society, held last month in Waseca, the following officers were elected for the current year: President, Dr. H. A. Miller; vice-president, Dr. H. M. McIntyre; secretary-treasurer, Dr. B. J. Gallagher, all of Waseca.

The following Minneapolis physicians have moved into the new Yeates building at the corner of Nicollet Avenue and 9th Street: Drs. L. M. Daniel, E. C. Gardner, D. F. Gosin, J. T. Litchfield, G. M. Olson, F. H. Poppe, A. F. Schmitt, S. C. Schmitt, and Perry R. St. John.

At the annual meeting of the Scott-Carver Medical Society the following were elected officers for 1924: President, Dr. F. J. von Bohland, Belle Plaine; vice-president, Dr. F. H. Buck, Shakopee; secretary-treasurer, Dr. H. W. Reiter, Shakopee; delegate, Dr. Reiter.

Dr. John H. Adair, of Owatonna, died last week at the age of 66. Dr. Adair graduated at Rush with the class of '83, and at once began practice in Owatonna, where he practiced forty years. He was prominent in all the medical interests of the state. (See editorial columns.)

The Central Minnesota Medical Association held its annual meeting in Willmar last week, when the following officers were elected for

1924: President, Dr. W. P. Robertson, Litchfield; vice-president, Dr. L. W. Anderson, Atwater; secretary-treasurer, Dr. C. L. Scofield, Benson.

The Clay-Becker County Medical Society met in Moorhead last month, when the following officers were elected for 1924: President, Dr. G. G. Haight, Audubon; vice-president, Dr. M. C. Bergheim, Hawley; secretary-treasurer, Dr. J. H. Heimark, Moorhead; delegate, Dr. W. H. Aborn, Hawley.

A delegation of war veterans at the Aberdeen, St. Paul, headed by Mayor Nelson, came to Minneapolis last week to present Dr. B. D. Resnick, now in the Asbury Veterans Hospital, a Masonic scarf pin in appreciation of his services in the St. Paul hospital. As noted above, Dr. Resnick has been transferred to Minneapolis.

The antivaccinationists of Butte, Montana—perhaps it is some religious cult—have appealed to the courts to prevent a "cruel and unusual punishment" in the form of vaccination of school children in that state. The appeal to the courts is based on a technical point, that is, as to whether a state board of health in that state really exists.

Dr. Donald A. McClellan, of Warm Springs, Mont., died last month at the age of 58. Dr. McClellan was a graduate of Quebec, class of '97, and went to Montana to practice the next year after graduation. He was formerly assistant superintendent for the Montana State Hospital for the Insane, and was a member of the staff at the time of his death.

At the January meeting of the Huron (S. D.) Medical Society, held last week, papers were presented by Dr. Benjamin Thomas on "Some Nasal Troubles Most Commonly Met;" and by Dr. L. N. Grosvenor on "Ophthalmoscopic Findings as Helps in Diagnosis." The following officers were elected: President, Dr. O. R. Wright; vice-president, Dr. T. J. Ward; secretary-treasurer, Dr. J. N. Grosvenor; delegate, Dr. B. H. Sprague, all of Huron.

The Sioux Valley Medical Association meets at Sioux City, Iowa, on Wednesday and Thursday of next week. The morning sessions will be devoted to clinical work in the hospitals of the city. Addresses will be delivered at the afternoon sessions by Dr. Martin Fischer, of Cincinnati; Dr. E. S. Bullock, of Silver City, N. M.; Dr. H. Gifford, of Omaha; Dr. Hugh

T. Patrick, of Chicago; Dr. W. F. Braasch, of Rochester, Minn.; Dr. J. B. Le Lee and Dr. A. J. Pacini, of Chicago.

Dr. H. O. Altnow, of Mandan, N. D., has gone East for a year of postgraduate work in internal medicine in the medical wards of the Peter Bent Brigham Hospital in Boston. After completing his work he expects to locate in Bellingham, Washington, to specialize in internal medicine. Dr. Altnow has been in Mandan for the past fourteen years, and during this time has served the entire time as Northern Pacific railway local surgeon. He also served for a period of six years on the Board of Medical Examiners, and a two-year term as its president. At present he is the second vice-president of the North Dakota State Medical Association. North Dakota thus loses one of its best men, and the good wishes of the whole profession go with him.

Following his internship in the City and County Hospital, St. Paul, Dr. Olaf Kittelson went around the world in 1913 and 1914. Following this trip he completed a fellowship in internal medicine in Rochester, and returned to Grand Forks, N. D., where he was in practice until May, 1917, when he joined the American Army. He went overseas and was attached to the British forces in London hospitals and the casualty stations, when he became battery medical officer in the front line. On his return he was in Minneapolis as internist in Veteran's Hospital No. 68. After the termination of his service there, he became associated with Dr. W. A. Jones, and is now in the suite occupied by Drs. W. A. Jones, J. Frank Corbett, and O. S. Wyatt in the Physicians & Surgeons Building. Dr. Kittelson will continue his work in internal medicine in addition to his neurological work.

At the annual meeting of the Hennepin County Medical Society, held last week, the following officers were elected: President, Dr. C. B. Wright; first vice-president, Dr. J. M. Lajoie; second vice-president, Dr. F. K. Schaaf; secretary-treasurer, Dr. R. T. LaVake; members of the executive committee, Dr. F. L. Adair and Dr. W. J. Marcle; members of the board of censors, Dr. E. A. Loomis and Dr. C. O. Maland; members of the board of trustees, Dr. A. W. Abbott and Dr. W. A. Jones; delegates to State Convention, Drs. F. L. Adair, J. W. Bell, R. T. LaVake, and J. G. Cross; alternates, Drs. L. A. Nippert, H. B. Sweetser, James Johnson, and J. C. Litzenberg.

## THE NEW ASBURY HOSPITAL OF MINNEAPOLIS

In order to prevent confusion, either among physicians or the lay people, the New Asbury Hospital of Minneapolis, which has just been completed, is located on Fifteenth Street and Ninth Avenue South (or Elliot Avenue, as it is designated). It is only a block from the old building, which we all knew so well as the old Asbury Hospital, but which is now called the Veteran's Hospital No. 68. This new hospital is probably as up-to-date as any hospital in the state. It is beautifully constructed, very substantially built, and it is delightfully furnished, and has air and sunshine from all sides.

The hospital was formally opened some time ago, but the first patients were received last week, and the first child was born in the hospital on the ninth of January. The hospital has about 120 beds available for patients. It is heated by an oil-burning furnace, which seems to be ideal in that during the severe weather it stood up under the test remarkably well. There are many new officers in the hospital, a list of whom will be given in our next issue, as will the list of staff members. At present the staff consists of a selection of men from various departments of medicine and surgery who, in turn, are to suggest other men to act either as assistants or associates in other departments. But our readers may rest assured that the staff will be an adequate one, composed of men who are recognized as able surgeons and physicians.

The telephone number of the New Asbury is Main 1080. In communicating with the hospital, the principal thing to keep in mind is that the location is on Fifteenth Street and Elliot Avenue.

## THE MINNEAPOLIS SURGICAL SOCIETY

### Program of the February Meeting

Thursday, February Seventh

University Hospital

9:00 A. M., to 12 M.

Dr. A. T. Strachauer, Dr. Law, Dr. Johnson, and Dr. Cameron

Followed by a Pathological Conference

Dr. E. T. Bell and Staff

Dinner at University Hospital

6:30 P. M.

Followed by presentation of cases

and a paper by Dr. R. E. Farr on

"Local Anesthesia of the Abdominal Sympathetic System."



PROGRAM OF THE HENNEPIN COUNTY MEDICAL  
SOCIETY FOR FEBRUARY, 1923

Studies in the Anatomy, Physiology and Diseases of the Brain, of Special Interest to the General Physician.

*Wednesday, February 6, 1 to 2 P. M.*

"Recent studies in Cerebral Function." By Prof. K. S. Lashley.

*Wednesday, February 13, 1 to 2 P. M.*

"Some Recent Advances in Our Knowledge of Cerebral Pathology." By J. C. McKinley, M.D.

*Wednesday, February 20, 1 to 2 P. M.*

"Psychiatric Problems in Childhood." By Lawson Lowry, M.D.

*Wednesday, February 27, 1 to 2 P. M.*

"Personality Study in Psychiatry." By J. C. Michael, M.D.

*Monday, March 3, 8 P. M.*

1. "Modern Classification of Mental Disease." By W. A. Jones, M.D.

2. "The Mental Hygiene Movement." By A. S. Hamilton, M.D.

**Furniture, Instruments and Library**

Of the late Dr. J. M. Egan, of Minneapolis, are offered for sale. They can be seen at 1415 Emerson Avenue North, Minneapolis.

**Part of Minneapolis Office for Rent**

Private office and use of reception-room with Drs. Weston and Willcutt, 801 Physicians and Surgeons Building, Nicollet and 9th Street; Tel. Geneva 4783.

**Position in Hospital or Clinic Wanted**

A graduate nurse with experience desires a position in a clinic or hospital. Will go outside of the Twin Cities. Best of references. Can do some x-ray work. Address 42, care of this office.

**Office Position Wanted in Minneapolis**

By a young lady of good address, who will accept work for a half or a full day and who will give faithful and efficient service. The best of references. Address 52, care of this office.

**Position as Technician Wanted**

By a woman with the best of training as a general laboratory technician. Can give the highest of recommendations, and will go to any part of the Northwest. Address 47, care of this office.

**Position Wanted**

A young lady with four years' experience in taking medical dictation desires a change of location. Group practice or clinic preferred. Has also knowledge of x-ray. Address 49, care of this office.

**Village Practice for Sale**

In Southern Minnesota. Scandinavian preferred. Examiner for many life and casualty insurance companies. Yearly income over \$6,000 in cash. Price,

\$500 for practice and equipment. Leaving soon to do special work. Address 51, care of this office.

**Physician Wanted**

Becker, Minn., wants a good live doctor *at once*. Big territory. 18 to 25 miles east, west, and north to any physician. Nearest one now 8 miles away and across the Mississippi river. Write J. W. Putney, President of Village Council, Becker, Minn.

**Position Wanted**

An expert x-ray technician, with a slight knowledge of routine laboratory work, desires a position, in the Twin Cities or the country, at a moderate salary. Will assist in office work or do any kind of work she can handle. Address 411, care of this office.

**Physician's Residence for Sale in St. Paul**

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

**Physician's Equipment and Instruments for Sale**

Includes Allison table, oak instrument cabinet full of instruments, dressing table, nebulizing outfit with motor, apparatus for application of hot air, therapeutic lamp, high-frequency generators, blood-pressure apparatus, specialist's chair, sterilizer, etc. Price for quick sale \$250. Address 43, care of this office.

**Wanted—A General Practitioner**

Wanted—A General practitioner who is not inclined to do surgery, but will assist in major operations, to locate in a South Dakota town of 1,350 on the C. M. & St. Paul Railway, to work with a surgeon who owns a private hospital. Must be a good general man, must be a Catholic, and must be licensed in South Dakota. This is positively an A No. 1 location. Address 41, care of this office.

**Physician Wanted**

Excellent location in central eastern North Dakota now without a physician. Large territory of good agricultural district including several other towns. Two railroads with good passenger service contribute to practice. May move into vacated physician's office in connection with dentist if desired. Office furniture and x-ray machine here for physician's use. Nothing for sale. Address O. H. Hoffman, D.D.S., Hannaford, N. D.

**Small Minnesota Hospital for Sale**

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 3

MINNEAPOLIS, FEBRUARY 1, 1924

Per Copy, 10c  
A Year, \$2.00

## TREATMENT OF BRAIN INJURIES\*

WITH WHICH IS INCORPORATED RECORDS MADE BY DR. F. HIRSCHFIELD

BY J. F. CORBETT, M.D.

MINNEAPOLIS, MINNESOTA

The real question of importance in regard to head injuries is the amount of damage to the brain. Of secondary importance are the fractures of the skull that may or may not be associated with brain injuries. During the years 1921 and 1922 among my personal series of head injuries there occurred 32 basal fractures with a mortality of fourteen. The basal fractures were all proven. Seventeen were simple fractures without extensive brain damage, and of these but one died. When extensive laceration and contusion of the brain existed in fifteen cases there were thirteen deaths. Reduced to a percentage basis we have for all basal fractures a mortality of 45 per cent. When there existed severe laceration and contusion of the brain 90 per cent died. Without marked brain damage similar basal fractures gave but 5 per cent of deaths. With fractures of the vault there were 18, of which 4 died, divided as follows: Simple fracture of vault 1 death and 5 recoveries. Fracture of vault with laceration 1 death and 3 recoveries. Fracture of vault external hemorrhage, 1 death and 5 recoveries. Fracture of vault and internal injuries, 1 death and 1 recovery.

Brain injury results in the following changes:

I. The changes immediately and directly resulting either from the inbending of cranial

bones or from the bumping of the brain against the inside of the cranium (Le Count's contrecoup.) These are immediate contusions and lacerations.

II. Contusions of the brain arising as a secondary result from various degrees of hemorrhage from torn pial vessels.

III. Subdural traumatic hemorrhages.

IV. Extradural hemorrhage.

V. Leptomeningeal hemorrhage.

VI. Edema of brain.

Le Count has classified injuries into seven groups:

A. Severe laceration of brain from 4 to 6 cm. in diameter with depth of 4 to 5 cm. There is a defect filled with torn brain and clotted blood.

B. Bruises of brain, usually wedge-shaped, in which brain is infiltrated with blood 2-4 cm. deep. The leptomeninges are usually torn and brain is lacerated.

C. Bruises with leptomeninges intact hemorrhage into the brain wedge-shaped, no laceration.

D. Superficial contusion represented by closely set petechial hemorrhage of cortex.

E. Hemorrhage into pons and medulla.

F. Small intracerebral hemorrhages 5-10 mm. in size.

G. Small intracerebral hemorrhage 1 cm. in diameter.

\*Presented at the forty-second annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.



Most of these terms are self-explanatory and are of but little practical importance. By leptomeningeal hemorrhage is meant escape of blood into the sub-arachnoid space or between the brain and the pia. These result from tears of pial arteries, cortical vessels, or bleeding of the brain. However, extradural hemorrhage and edema of the brain are two important subjects and it is with these that this paper will deal.

#### WHAT IS EDEMA?

Cannon attributes occurrence of edema to changes in osmotic pressure in brain tissue caused by contusion, the latter characterized by diffuse formation of thrombi, punctate extravasations, and thin patches of hemorrhage in meninges. He concludes edema is result of alteration in brain tissue associated at times with a pressure many times greater than blood pressure. Reichardt believes the weight of brain in edema exceeds the weight of the same volume of normal brain, through absorption of water. The gross appearance of edema at postmortem shows a drumlike tenseness of dura, a flattened condition of the convolutions, the peripheral sulci closed tightly, small cerebral veins are empty, and larger branches wedged tight in sulci. The minute pial arteries are almost or quite invisible, the surfaces of the visceral arachnoid are dry, and almost microscopic droplets may be seen from where visceral serous surfaces are separated. The surface of the brain is often like putty. The brain when removed is soft. The lateral ventricles are closed, and the cut surfaces of the brain show absence of stippling. Microscopically the perivascular lymph spaces are distended, and there are empty spaces between fibers and cells. Apfelbach has made a careful study of the water content of brain with edema. As a result of his investigations he found there is an actual demonstrable increase of from 3 to 45 grams of water in the entire brain with edema. This mere increase of bulk would not produce symptoms as may be seen from following observations. Deucher introduced paraffin into skull to extent 6 per cent volume without symptoms. With 10 per cent there was slowing of pulse and respiration. Schulten believes there may be from 40 to 90 c.c., decrease of intracranial space from intradural hemorrhage, and no symptoms follow. Sixty-eight c.c., of free blood between the dura and the cranial bones have produced moderate stupor and slowing of pulse, and 116 c.c., have produced marked symptoms of intracranial pressure with coma.

The post-mortem findings of Le Count and

Apfelbach showed that edema begins a few hours after injury, increases for two or three days, and then disappears. Edema seems to produce symptoms of intracranial pressure. Reichardt considers colloid chemical phenomena explanation for the marked disproportional swelling of edema through the agency of a relatively small amount of water.

It is evident from the preceding statements that increased volume of the brain occurring in the condition known as edema is not alone on account of the brain taking up water, but there must be some physical change in the brain substance. We cannot demonstrate this microscopically, but can express the change as of a colloid or colloid-chemical nature. This same phenomenon has its analogue in a very homely experiment. Let one fill a bottle with beans and then fill all the interstices with water, cork the bottle, and allow it to stand. Sufficient pressure will develop to burst the bottle, and the beans will be so expanded that their surfaces will be covered with facets. Edema of the brain manifests itself clinically as follows: Characteristic changes in the eye-grounds. These do not assume the character of a papillo-edema, such as we have in extradural hemorrhage, yet they are marked. The vessels may appear indistinct as though imbedded in velvet. The nasal half of the disc usually loses its outline. The veins may be distended, the arteries small. If conscious, the patient has headache, but in more severe edema half consciousness, manifest by disorientation of mind and incoherence in speech, occurs and with extreme edema complete unconsciousness; and when the medullary center becomes encroached upon, slow pulse and respiratory paralysis ensue. Such is one of the most serious conditions we have to combat with when treating head injuries.

Before discussing the various means at our disposal let us further consider the condition under which the brain exists. The skull and vertebral canal may be considered a practically inelastic, rigid vessel. It is true there is a little elasticity to the membranes at the exit of the spinal nerves, but this is very slight. In this the soft jelly-like brain is suspended in the cerebrospinal fluid. Under normal conditions this vessel is exactly filled with fluid, brain, and cord. The cerebrospinal fluid is in all probability entirely secreted in the choroid plexuses of the lateral ventricles, finds its course from these through the foramina of Munro to the third ventricle, traverses the third ventricle, and leaves it by the

iter to the fourth ventricle, and finally escapes from the fourth ventricle by the foramina Magendi and Luschka to the subarachnoid spaces. There seems to be a current from the basal subarachnoid region to the region of the longitudinal sinus, where the fluid is absorbed by the tufts of veins draining into the sinus. No one knows the rate of the secretion of the cerebrospinal fluid under normal conditions. It is probably very slow, or at least the rates of production and absorption are closely correlated. Escape of cerebrospinal fluid through the opening in the skull may be enormous, but this enormous output is probably only an effort to maintain a proper balance. It has been said that the function of the cerebrospinal fluid is to provide a mechanical safeguard to the centers and a regulatory mechanism for the blood supply by the brain. In edema of the brain it is apparent that the veins concerned in absorption are blocked; therefore relief from pressure by absorption of fluid does not normally occur. If we can then, in any way, remove a small part of the fluid we relieve the pressure and in some degree unlock the portal of absorption so that the balance may be restored. There seem to be two methods at our hand to accomplish this:

1. Intravenous injection of hypertonic salt solution.

2. Spinal puncture.

In regard to intravenous injection: The research by Foley shows that when concentrated salt solution is injected into the veins there occurs a complete reversal of the normal circulation of cerebrospinal fluid. Under this procedure the choroid plexus no longer secretes, but actually absorbs cerebrospinal fluid; the arachnoid villi, whose normal function is to absorb, then secrete; and the whole current of the fluid is reversed. This will decrease the fluid in the ventricles and to some degree take water from the brain. Theoretically this seems beautiful, but the results in actual clinical cases have not been very good in my hands, in that a secondary reaction has always followed with increased edema.

Spinal puncture is a procedure I wish to discuss in the fullest detail. Dr. Hirschfield has collected data from twenty-five skull fractures in my service that I will use as illustrations. with Dr. Hirschfield I made a careful study and analysis of twenty-five severe head injuries. These cases gave evidence of severe laceration of the brain, and the spinal fluid in all was blood

stained for a period of time. Choked disc did not occur in any, but so far as our records go there were changes indicative of increased intracranial pressure in that there was blurring of the nasal half of the disc. These cases gave a general impression of edema of the brain. They were treated with repeated spinal punctures as we made it a rule to reduce the spinal pressure to normal limits as often as was thought best in each case. The cases in this series were unusually severe. Of the basal fractures three showed loss of light reflex, and two reacted; of the vault cases all gave light reaction; of the basal and vault fractures, nine gave no reaction to light and five gave reaction. Of all cases that gave no reaction to light, death ensued in six cases, and six recovered. There was inequality of the pupils in two basal fractures, in one vault fracture, and six basal and vault fractures. There was paralysis of extra-ocular movement in three of the basal fractures; in none of the vault fractures; and in six of the basal and vault fractures. In these internal strabismus was reported once and external strabismus twice. The pupils were contracted in four of basal and vault fractures. In three basal and vault fractures the pupils were normal size. One case had irregular pupils due to syphilis, which was discovered at autopsy. The eye findings gave a good index to the grade of severity of these cases. At one time it was thought that loss of light in a basal fracture indicated a fatal prognosis. There was definite bleeding from the ears recorded in nine of these cases.

Of the basal cases one died, and two recovered; of the vault cases two died and four recovered. While in the basal and vault cases there occurred six deaths and ten recoveries. Total deaths, nine; recoveries, sixteen. The cause of death was as follows: meningitis in one operated case of vault fracture; in two operated cases of basal and vault fractures; in two non-operated basal and vault fractures, and in one non-operated basal fracture; shock in two cases; hemorrhage one case. Death from hemorrhage, shock, and meningitis in nine. This seems to leave no deaths from brain edema, usually a prolific cause. The condition on admission was as follows: Deep coma occurred thirteen times, distributed as follows: basal and vault, eight; base, two; vault, three. Semicoma occurred ten times, distributed as follows: vault, two; vault and base, six; basal, two; intermittent coma and semicoma in one vault and basal fracture. Of incidental interest is the occurrence of a positive Babinski



with no associated or later paralysis. These included two vault fractures, in one of which the patient was blind for twelve hours; three basal and vault fractures, of which one had Jacksonian attacks and one basal. Paralysis of the seventh and eighth nerves occurred twice.

The relation to brain injury and edema is shown to some degree by the spinal manometer reading. The average reading was 11 mm. of mercury when this was done within three hours after the accident. In one instance this was 16 mm., which was the highest. There was one case not included in the above averages where the manometer registered 21 mm., almost immediately after the accident. In this case there was no blood in the spinal fluid, but there was an enormous depressed fracture. The pressure was 15 mm. in this case at the end of twenty-four hours. Even the cases in profound coma on admission did not show any increase above what has been given. Some of these cases improved at end of twenty-four hours, but among those that got worse there were five, and in these the average pressure was 25 mm.; that is, edema had been added to the damage of the original trauma. In one case edema was delayed and showed a maximum as indicated by spinal reading of 28 mm., in three days. With all cases the average manometer reading was 17.1 mm., at the end of twenty-four hours. As an example of edema, in a case with no evidence of initial trauma, 5253 was most striking. This man was injured at 9 A. M., and his mind was clear at 1:59, P. M. He became slightly drowsy and almost comatose at 5 P. M. His manometer reading at 5 P. M., was 23 mm. He immediately cleared after puncture, and his reading remained at 16 mm.

Coma may exist as a result of the brain trauma without increased intraspinal tension, but the usual subsequent occurrence of edema is apt to complicate the condition by further increasing intracranial tension. Edema has never been very evident before eight hours after the accident; therefore early spinal puncture is not advisable unless there is special reason for it. It was hoped that this research might reveal some rule to determine when this is needed. No rate between the pulse rate and the pulse pressure has been determined, although in some cases there seems to be a ratio. The pulse rate does not seem to give any index of the manometer reading, especially late in brain injury, when it is probable that spinal puncture does not register intracranial pressure on account of partial plug-

ging of the foramen magnum. In cases showing increase of mental torpor and in all cases of coma, spinal puncture is indicated at a time from eight to seventy-two hours after the accident. When there is respiratory embarrassment or marked slowing of the pulse, spinal puncture is indicated. However, this may actually intensify slowing of the pulse when done late in the condition owing to lack of free communication between the structures above and below the foramen magnum. Actual slowing of the pulse after spinal puncture is shown in Case 7367. Further than this the pulse remained slow for a period of time when the intraspinal pressure was low; therefore it is probable that the intracranial pressure was not the same as the intraspinal, and so I do not believe spinal puncture is of much value after the third day. As a general rule it is indicated from the end of eight hours to seventy-two hours after the accident. In one case the edema persisted for a long time, and the continued punctures seemed to be beneficial. Leucocytosis occurs in brain injuries where no meningitis or pneumonia can be demonstrated. In this series it averaged 12,650.

*Extradural hemorrhage.*—Moody reports that of 908 autopsies there were 100 cases of extradural hemorrhage of such size that compression of the brain by blood was the cause of death. Of these the diagnosis was made by autopsy in 63 cases. In fatal cases the blood weighed from 40 to 46 gm. He further calls attention to the occurrence of leucocytosis in these cases. From these reports one might reason that extradural hemorrhage was common and that its recognition during life was difficult. There is nothing more dramatic than the course of a case of extradural hemorrhage. The patient may have a momentary or a prolonged period of unconsciousness followed by a greater or less lucid interval. Then in the course of from six to twelve hours there is a gradual progressive development of a new train of symptoms. For example, a patient may walk into the doctor's office and report that he has been struck on the head. If he is kept under observation symptoms of localized compression develop. Extradural hemorrhage is most common from rupture or tearing of the middle meningeal artery; therefore the motor area is affected early. While the patient is still conscious certain motor phenomena develop. First of all, slight increase in reflexes, then fibrillar twitching of muscles, then as consciousness begins to drift away there develop in the muscles of the leg and arm first a flaccid paraly-

sis and loss of reflexes, and later this may become spastic. Immediately before the development of coma aphasia can often be demonstrated if hemorrhage is on the left.

Examination of the eyes shows a rapidly developing papillo-edema. The pupil is often dilated on the same side as the hemorrhage. Finally complete unconsciousness develops. The pulse becomes slow, respiration stertorous, and the pulse pressure becomes raised. Sometimes the pulse pressure is twice the pulse rate. Such a case can get relief only through surgical intervention. Death will ensue from anemia after the intracranial pressure exceeds the blood pressure. In my series are six cases of bleeding from the middle meningeal with one death; two cases with hemorrhage from the longitudinal sinus with recovery in both; one case from the sigmoid sinus with recovery; one case of deep bleeding in the brain substance simulating a middle meningeal hemorrhage with recovery. The symptoms from the sigmoid case were those of a cerebellar tumor without general signs of compression.

The surgical indication is to operate as soon as diagnosis is made. This necessitates ligation of the middle meningeal or packing the sinus with gauze. The recovery has usually been complete and depends on the amount of damage done to the brain cells by pressure.

Record of Case 7367, showing slow pulse and severe mental reaction, due to intracranial pressure but no increase in intraspinal pressure after the fourth day.

7367	P.	B.P.	P.P.	Ma.	T.	Notes
	84	$100\frac{1}{2}$	28	8	Ad.	Coma
	70	$140\frac{1}{2}$	70	41	2	Da. Early in recov. Residual irrit.
	74	$140\frac{1}{2}$	70	24	3	Da. Laughs silly Overtalkative
	60	$100\frac{1}{6}$	24	17	4	Da.
	58	$104\frac{1}{8}$	24	8	8	Da.
	80	$114\frac{1}{8}$	34			Late Great improv.

P.=pulse rate.

B. P.=Blood pressure.

P. P.=Pulse pressure.

Ma.=Reading of spinal manometer in terms of Hg.

Record of Case 6303.

Vault and basal fracture

H

6303	P.	B.P.	P.P.	Ma.	T.	Notes
	60	$140\frac{1}{100}$	40	14		Left facial Palsy VII
		$172\frac{1}{2}$	78	14	24	Hrs. Nerve Deafness VIII
		$174\frac{1}{90}$	84		48	Hrs. Blood in Spinal fluid

$154\frac{1}{110}$  44 15 72 Hrs.

$148\frac{1}{90}$  58

80  $118\frac{1}{70}$  48 10 96 Hrs.

P.=pulse rate.

B. P.=Blood pressure.

P. P.=Pulse pressure.

Ma.=Reading of intraspinal pressure.

Record of Case 7450.

Basal

7450	P.	B.P.	P.P.	Ma.	T.	Notes
	60	$136\frac{1}{70}$	66	12	Recov.	Right facial Palsy VII
	70	$118\frac{1}{70}$	48	21	24	Hrs. Right nerve after admittance
	70	$132\frac{1}{70}$	62	28	48	Hrs. Deafness VIII Subconjunctival Hemorrhage
	70	$100\frac{1}{70}$	30	28	72	Hrs. Unequal pupils no reaction to light
	70	$124\frac{1}{8}$	46	17	96	Hrs. Mental Deterioration
	70	$104\frac{1}{70}$	34	20	120	Hrs. Now clearing

P.=pulse rate.

B. P.=Blood pressure.

P. P.=Pulse pressure.

Ma.=Intraspinal pressure in terms of Hg.

#### DISCUSSION

DR. JOHN CRAWFORD (New Rockford): It has recently been shown that the intraspinal pressure can be markedly reduced with 15 per cent hypertonic salt solution, using 100 c.c.; and I would like to know if Dr. Corbett has used this in his head injuries. It is of marked advantage in the treatment of neurosyphilis, and I would like to have the Doctor's opinion regarding its use in head injuries.

DR. CORBETT (closing): I have tried intravenous salt solution on numerous occasions.

The first cases were those of a couple of patients in the hospital who had a large defect in the skull where I had removed a brain tumor and there was more or less of a herniated mass. After I administered the salt solution you could almost see the mass shrink down, but always following that there was a larger hernia than we had before. That gave me an unfavorable impression of the treatment.

From research work that has been done in regard to the hypertonic solution it has been found that the maximum effect was from fluid from the ventricles. It has been found that in some measure it draws that fluid from the brain. In edema we are not dealing with distension of the ventricles but with a colloid condition in the brain that is very little influenced by salt solution. The great benefit derived from salt solution has been in cases with distension of the ventricles. I have tried it in cases with edema, and the results were bad, so I have never become very enthusiastic about salt solution in cases with edema of the brain. I soon became discouraged about this, and it may be my fault, but I think spinal puncture is so much easier and safer that I have abandoned the use of the hypertonic solution altogether.

I wish to thank you, gentlemen, for your kind attention in listening to my paper.



# THE USE OF INSULIN AND HIGH FAT FEEDING IN THE TREATMENT OF DIABETES IN CHILDREN\*

BY N. O. PEARCE, M.D.

Assistant Professor of Pediatrics, College of Medicine, University of Minnesota  
Children's Clinic of Minneapolis  
MINNEAPOLIS, MINNESOTA

In the light of the recent great work of Dr. Banting, one hesitates to present the subject of the control of diabetes mellitus except in a discussion of its treatment by the use of insulin, but our experience with insulin has already taught us that the dietetic control is still a most important factor, and that an understanding and proper application of the correct principles involved in feeding diabetic patients is just as essential to success as it was before the introduction of insulin. The use of insulin in its relation to the treatment of juvenile diabetics will be discussed after canvassing the recent steps in dietary regime. Perhaps the first valuable contribution in recent years to our knowledge of dietary control was made by Allen; and closely following and associated with it, is the work of Joslyn. These two men having brought forth the scheme of feeding diabetics generally known as the "undernutrition plan." This scheme of Allen's, as modified by Joslyn, has become in the past few years generally accepted as a standard by the medical profession of our country. This plan, in brief, was built upon the theory that excessive feeding hastened the downward progress of the disease, and that the presence of glycosuria and hyperglycemia, and the presence of acetone bodies in the urine were a serious menace to the welfare of the patient, and that a state of undernutrition with periodic starvation should be maintained as the best method of eliminating these undesirable conditions. Furthermore, their diets were built up empirically upon the theory that fat was the greatest menace to the patient's health, and therefore should be resorted to only to the extent necessary to make up sufficient calories for a bare maintenance diet. This was especially emphasized in their method of initial treatment with the object of having the patient become sugar and acetone free, which consisted of first withdrawing the fat, then the protein, and then the carbohydrate. In this way they were successful in nearly every case in rendering the patient sugar-free without producing a state of coma, while they found that when they withdrew the carbohydrate first and allowed the fat

to remain, they were very likely to produce coma. Once the patient was sugar-free, he was placed on a diet containing as much as two or even three grams of protein per kilo of body weight, a small amount of carbohydrate, and only enough fat to make up sufficient calories for a bare maintenance diet. The carbohydrate was then increased from day to day until sugar again appeared in the urine, at which time the carbohydrate was restricted to a point well below tolerance and the patient expected to maintain himself upon this diet. By this method the recent statistics by Joslyn<sup>2</sup> have shown that the life of the average diabetic has been increased from three and one-half to six and one-half years. However, one must bear in mind that these patients when children, except in the mildest cases, were in a state of undernutrition, which prohibited growth and normal physical and mental activity. There has been little material change in the method of Allen and Joslyn in the past several years.

If we may pass over a number of rather startling reports of successful diabetic feeding, such as the Donkin milk cure, von Duering's rice cure, Moose's potato cure, Van Noorden's oatmeal cure, and Petran's high-fat cure, we come to the recent work of Newburgh and Marsh,<sup>1</sup> who in the past three years have obtained as striking results as Allen and Joslyn by a method of feeding which is almost diametrically opposite to that of the previously accepted standard. Briefly, this method involves, no matter how severe the case, no initial or periodic starvation period and no prolonged undernutrition status. On admittance, their patients without preparation were given a daily diet which contained protein, from 15 to 20 gms.; fat, from 85 to 95 gms.; and carbohydrate, from 10 to 12 gms., making a total of some 900 calories for adults with children in proportion, and in all of the 190 patients they have reported there was no case in which acidosis developed, and, in practically all cases the sugar and acetone disappeared from the urine within a few days. After the patient was desugared, his diet was gradually increased by steps until he was receiv-

ing 2/3 gms. of protein per kilo, never more than 35 gms. of carbohydrate, and sufficient fat for a liberal maintenance diet. The patients on this diet usually gain largely in weight, and upon being discharged are able to take up their ordinary activities of life.

Here, then, we have a seemingly paradoxical situation, one group advocating undernutrition, high protein, and carbohydrate as high as possible, with the minimum necessary amount of fat; and the other group advocating low protein, low carbohydrate, and high-fat and full-nutrition diet. Both groups seemingly obtain about the same extension of life for the diabetic, with the high-fat feeders having the advantage of a patient comfortably fed and with sufficient energy for growth and ordinary activity.

It is to the biological chemist that we must turn for an explanation of why fat is so dangerous in certain combinations of food, and so generously possible with restricted protein and, when properly balanced, with carbohydrates. Lusk, Woodyatt, Wilder, and Shaffer have contributed largely to our knowledge of the scientific principles involved in the disease and its treatment. Woodyatt,<sup>3</sup> in 1921, pointed out three important factors in the control of diabetes which had been little considered by clinicians, and the knowledge of which has contributed as much to our understanding of the correct principles of diatetic control as all of the clinical work that has been done. First, he points out that the anomaly of the metabolism which characterizes diabetes is an inability on the part of the body to utilize as much glucose as may be utilized by the normal body when the supply of glucose exceeds certain limits. The diabetic appears to be capable of utilizing a limited quantity of glucose, as well as the normal individual, but fails to utilize a normal percentage of any glucose introduced into the body in excess of this limit. The endocrine function of the pancreas presumably is the secreting of a substance (insulin) having the power to dissociate the one specific sugar, glucose, into which all other carbohydrates that are capable of utilization on a large scale, must first be converted before they can be oxidized, reduced, or built up into glycogen. Also the anomaly of metabolism in which abnormal quantities of acetone, aceto-acetic, and B. hydroxy-butyric acid appear in the tissues, urine, and blood, is a secondary effect in the nature of a disturbed metabolic balance resulting from an insufficient amount of oxidizing glucose. This appears to be the immediate result of the oxid-

ization of certain fatty acids in the absence of a sufficient proportion of dissociated glucose. The quantity of dissociated oxidizing glucose in the body and the maximum quantity of ketogenic fatty acids that can be oxidized in the same time without the appearance of abnormal amounts of acetone bodies, is in definite ratio, and thus the quantity of oxidizing glucose available fixes the upper limit to the quantity of fatty acid that can be completely oxidized. Secondly, Woodyatt pointed out that we must not think of the food supply of the body exclusively in the terms of diet to the neglect of the endogenous factors. When a man fasts, he does not cease to produce heat. With light exertion, he will probably produce as much as 30 calories per kilo of body weight daily, the source of this being largely the body fat and protein. Lusk<sup>4</sup> explains that, where there is much fat stored in the body, little protein is used; where there is little fat present, much protein is consumed; and where there is no fat, protein alone yields energy for life; but the ingestion of fat may spare tissue fat and thus prevent the amount of protein used from becoming abnormally great, the fat ingested simply burning instead of the body fat, the relative amount of protein and fat burned remaining the same. If this be true, why should we ever use complete fasting for diabetics? Thirdly, Woodyatt observes that we are inclined to think too much in terms of carbohydrate, protein, and fat, and that these substances are not in reality the substances that present themselves for final oxidative attack in the body which results in the liberation of energy. It is not starch in the bowel nor glycogen in the liver or muscles that taxes the endocrine function of the pancreas, but glucose into which these carbohydrates is resolved. Protein of the diet ceases to be protein and becomes a mixture of amino-acids. Neutral fats, to be sure, may be absorbed in part as such, but, before they can be acids. Neutral fats, to be sure, may be absorbed in part as such, but, before they can be oxidized and used as sources of energy, they must first be saponified into glycerol and higher fatty acids. Or, to state it as simply as possible, where these substances present themselves for the vital metabolic process in which the pancreatic extract insulin plays its important part, fat must be figured on a basis of 90 parts higher fatty acids and 10 parts glucose; protein resolves itself into 58 parts glucose and 45 parts ketogenic acid equivalent, while the carbohydrate changes to 100 per cent glucose.



Aside from these, there are other important physiological factors which must be considered, one of the most important being the maintenance of the nitrogen equilibrium, it being well known that any diet which does not supply sufficient nitrogen intake to more than contrabalance the urinary nitrogen output, would soon bring the patient to disaster. As protein is the main source of nitrogen, our diet must contain an adequate amount of this substance. Hindhede has shown that for adults, two-thirds of a gram of protein per kilo of body weight is sufficient to maintain a nitrogen balance, and while there are no figures available for small children it is usually estimated that one gram of protein per kilo is necessary. It has been proven by various observers that there is no difference in the maintenance of a nitrogen balance between normal individuals and diabetics.

It is an important consideration, as shown by Wilder and others, that protein has a decided tendency to increase the metabolic rate, a thing to be avoided in the care of diabetics.

Therefore with all of these points in mind, and remembering that, when treating a diabetic child, we are attempting to produce and maintain an aglycosuric state, a freedom from acidosis, a nitrogen balance, a normal blood sugar, to supply sufficient energy for growth and ordinary activity, to avoid the evils of fasting and under-nutrition, and, if possible, to avoid a downward progress of the disease, and in children a reasonable gain in weight, we may proceed to construct a diet on those principles. For example, let us assume that we have a child of 15 kilos. We know that he must have approximately 80 calories per kilo, or 1,200 calories per day. In order to maintain the nitrogen equilibrium, it will be necessary to give at least 1 gram per kilo of protein so we will fix the protein at 15 grams. In order to throw the least possible strain upon the diseased pancreas, we fix the carbohydrate as low as is possible, and still have sufficient glucose to burn up the higher fatty acids. Let us then give 20 grams of carbohydrate, which should be well within the tolerance of any but the most severe case. The 15 grams of protein figured at 4 calories per gram will supply 60 calories, and the 20 grams of carbohydrate figured at 4 calories per gram will supply 80 calories. Thus we have now available a total of 140 calories, and this deducted from our 1,200 calories necessary leaves 1,060 calories to be derived from fat, and, figuring fat at 9 calories per gram, we would require 115 grams

of fat. Here we have a diet which will supply sufficient calories, which will maintain a nitrogen balance and contain so small an amount of carbohydrate as to make minimum demand upon the depleted pancreatic excretion, insulin. But we have yet to prove that such a diet will not bring about a state of acidosis. As was pointed out earlier in this paper, we must resolve this protein, fat, and carbohydrate into terms of glucose and higher fatty acids, remembering that there must be present an amount of oxidizing glucose sufficient to insure the complete metabolism of the higher fatty acids or we shall have in the blood and tissues acetone, aceto, acetic, and B. hydroxybutyric acid, or, in other words, a state of acidosis. This ratio of glucose to higher fatty acids may be as high as 1 to 4 according to Newburgh and Marsh,<sup>7</sup> and the recent chart of Wilder<sup>6</sup> would bear this out.

In the diet as outlined the 15 grams of protein resolve themselves into 58 parts of glucose and 45 parts of ketogenic acid equivalent, or 8.7 grams of glucose and, approximately, 7 grams of higher fatty acid equivalent. The 20 grams of carbohydrate will appear as 20 grams of glucose, and the 115 grams of fat resolve themselves into 90 parts higher fatty acids and 10 parts of glucose, or 11.5 grams glucose and 103.5 grams of higher fatty acids. Thus, the diet of 15 grams of protein, 20 grams carbohydrate, and 115 grams of fat actually becomes, from the diabetic standpoint, glucose 40.2 grams, higher fatty acid and equivalent 110.5 grams, which is less than a 1 to 3 ratio, giving a wide margin of safety.

In order to construct a maintenance diet along the principles of Allen and Joslyn of 1,200 for a 15 kilo child, we would proceed as follows: First, the protein would be placed at 35 grams, almost 2.5 grams per kilo, furnishing 21 grams of glucose and 15 grams of higher fatty acid equivalent; carbohydrate, 40 grams, furnishing 40 grams of glucose; and then to make up the 900 calories remaining, we should have to resort to 100 grams of fat, which will furnish 91 grams of higher fatty acids and 9 grams of glucose. This diet, then, would consist of 105 grams of higher fatty acid and equivalent and 70 grams of glucose, as compared with the previous diet of 110.5 grams of higher fatty acids and 40.2 grams of glucose. It is quite obvious that such a diet in no way compares favorably with the first one outlined. In the first place the 2.5 grams of protein per kilo would have a marked tendency to speed up metabolism, and also furnish a large amount of glucose. Secondly,

the 40 grams of carbohydrate added to the 21 grams from the protein and the 9 grams from the fat would obviously throw a great strain on the insulin secretion, and, except in the mildest case, would cause hyperglycemia and glycosuria; and, while increasing the protein and carbohydrate so markedly, we have reduced our total fatty acids less than 5 grams. On such a diet, insulin would have to be resorted to immediately, or, as was done previously, the total calories were cut down to a point where the glucose tolerance was not exceeded, but the same relative proportions of protein, fat, and carbohydrate were maintained. In order to approach the amount of glucose in the first diet, the total calories would have to be cut to about 700 or, approximately, 50 calories per kilo, which brings us back to the undernutrition or starvation idea, which, no matter how well it may have worked out for adults, has proved to be a total and absolute failure in the care of the children with diabetes. Unfortunately, all cases in children are rather severe in type with a rapid downward progress; and with our restricted diet and starvation days, we not only failed materially to retard the progress of the disease, but we condemned these children to a miserable, unhappy, half-starved existence, which accomplished nothing but a temporary postponement of the inevitable exodus. Whether or not the new ideas of feeding will arrest the progress of the disease or prolong the life of the child, they at least will give him a well-fed, comfortable existence with the desire and strength to work and play with normal children.

CASE 1.—James S., aged 4. May 14, 1923.

History: Family history, negative. Until the present trouble, he has never had any severe illness. Had whooping cough some time ago. About two weeks ago his parents noticed the child was extremely thirsty, and drank large quantities of water during the day, as well as demanding water frequently at night. He was passing large quantities of urine; appetite was better than usual. The child was very irritable, did not seem to have his usual desire to play, and evidently losing in weight. The family physician, a day or two before his appearance at the Clinic, had found a positive reaction for sugar in the urine.

Physical examination: The patient is a well-developed, fairly nourished boy, with flushed cheeks and dry skin with no other findings. Blood sugar showed .14; the urine gave a very positive reaction of sugar. On a restricted diet, containing 25 protein, 20 fat, and 60 carbohydrate in twenty-four hours, he excreted 10½ grams of carbohydrate, showing diacetic acid and acetone. On the following day, the carbohydrate was cut to 55 grams; he excreted 2 grams sugar with no diacetic acid or

acetone; on the following day, he was sugar free. However, during this period, he lost one pound in weight. He was then placed on a high-fat diet, containing 18 grams protein, 80 grams fat, and 20 grams carbohydrate. He did not show any further sugar, and started to gain in weight. The diet was gradually increased until finally, on discharge, he was getting 20 protein, 115 fat and 20 carbohydrate. All flushing of the face and general feeling of languor disappeared after the first few days on this diet, and he became good natured and desired to get out and play with other children. Since leaving the hospital he has been maintained on the same diet, and has gained consistently in weight. The father states that he has plenty to eat and plays and acts exactly like a normal child. At only one time has he showed any trace of sugar, which was for just one day.

CASE 2.—Doris H., aged 5. July 13, 1923.

History: Family history, negative. No history of serious previous illness. First known to have had diabetes three months before, when sugar was found in her urine by the local physician. She was put on a diet with some apparent improvement, but still continued to lose in weight and excrete sugar in the urine. Later on, by advice of another physician, practically abandoned any attempt at dieting at all, which resulted in rapid loss of weight, extreme thirst, frequent urination, and a general lack of well-being.

Physical Examination: This showed a rather well-developed, undernourished child with physical findings otherwise negative. The urine contained large amounts of sugar and acetone. On a diet which her mother had been giving her at home during the first 24 hours, she excreted 17 grams of sugar, and during the second 24 hours excreted 42 grams of sugar, both specimens containing large amounts of acetone, but no diacetic acid. On the third day, without previous starvation, she was placed on a high-fat diet of 22 grams protein, 110 grams fat, and 19 grams carbohydrate, with the result that on the second day after the high-fat diet she excreted 6.75 grams of sugar; the following day 6 grams; the next day, 1.25 grams; and the next day, she was sugar free. During the first three days, she lost one pound, and gained it back the first four days on the high-fat diet. Her blood sugar was not determined.

#### SAMPLE DIETS

##### Breakfast

	Prot.	Fat	C. H.
Raspberries, 41 gms.....	.41		5.16
Cream, 1 oz.....	1.58	10.28	1.42
Bacon, 30 gms.....	3.15	19.44	
Butter balls, 2 gms.....	.10	8.50	
	5.24	38.22	6.58

##### Dinner

	Prot.	Fat	C. H.
Spinach, 100 gms.....	2.10	4.10	2.60
Chicken, 15 gms.....	4.68	.66	.31
Cauliflower, 60 gms.....	.54	.06	.24
Strawberries, 50 gms.....	.50	.30	3.70
Cream, 1 tbsp.....	.71	5.14	.71
Butter, 30 gms.....	.30	25.50	
	8.83	35.76	7.56



Supper			
Lettuce .....	6.50		
Olive oil, ½ tbsp. (French dr.)			
Salad egg yolk.....	2.89	5.99	
Cauliflower, 120 gms.....	1.08	.12	.48
Jello (Diabetic).....	1.00		
Strawberries, 75 gms.....	.75	.45	5.55
Butter, 20 gms.....	.20	17.00	
Cream, 3 tbsp.....	1.58	10.25	1.42
	7.50	40.31	7.45
Totals .....	21.57	114.29	21.59

Bran bread and biscuits, made up without food value, are given freely with each meal.

## SAMPLE DIETS

Breakfast			
	Prot.	Fat	C. H.
Raspberries, 41 gms.....	.41		5.16
Cream, 1 oz.....	1.58	10.28	1.42
Bacon, 30 gms.....	3.15	19.44	
Butter balls, 2 gms.....	.10	8.50	
	5.24	38.22	6.58

Dinner			
Roast lamb, 20 gms.....	3.94	2.54	
Spinach, 50 gms.....	1.05	2.05	1.50
Tomatoes, 105 gms.....	1.26	.21	4.20
Cucumber, 50 gms.....	.40	.10	.04
Mayonnaise 21 gms.....	.26	19.92	
Cream, 1 tbsp.....	.62	2.31	1.50
Butter, 10 gms.....	.10	8.50	
	7.63	35.63	7.24

Supper			
1 egg.....	6.60	6.00	
Mayonnaise, 21 gms.....	.26	19.92	
Cream, 1 oz.....	1.58	10.28	1.42
Butter, 5 gms.....	.05	4.25	
Cherries, 33 gms.....	.30	.26	5.30
	8.79	40.68	6.72
Totals .....	21.66	114.53	20.54

Bran bread and biscuits, made up without food value, are given freely with each meal.

## SAMPLE DIETS

Breakfast			
	Prot.	Fat	C. H.
Egg yolk, 1.....	2.89	5.99	
Bacon, 30 gms.....	3.15	19.44	
Orange, 60 gms.....	.38	.06	5.31
Cream, 1 oz.....	1.58	10.28	1.42
Peanut butter, 5 gms.....	1.26	2.32	.85
Butter balls, 2 gms.....	.10	8.50	
	9.36	46.59	7.58

Dinner			
Cauliflower, 125 gms.....	1.08	.12	.48
Tomatoes, 140 gms.....	1.68	.28	5.60
Cream, 3 tbsp.....	1.58	10.25	1.42
Butter, 20 gms.....	.20	17.00	
Ham, 15 gms.....	3.30	3.15	
	7.84	30.80	7.50

Supper			
Peach, 64 gms.....	.32	.75	4.93
Egg yolk.....	2.89	5.99	
Cream, 3 tbsp.....	1.58	10.25	1.42
Cucumber, 50 gms.....	.40	.10	.04
Mayonnaise .....	.26	19.92	
	5.45	37.01	6.39

Totals ..... 22.65 114.40 21.47

Bran bread and biscuits, made up without food value, are given freely with each meal.

So much has been said and written about insulin since its discovery that there is little new to add, and I propose only briefly to discuss its use in connection with the dietary control in children. We understand that the disturbance of metabolic function known as diabetes mellitus is due, primarily, to disease and degeneration of certain glands of the pancreas, which have the specific function of secreting insulin; and, owing to this diseased condition, an insufficient amount of insulin is produced. And we further know that each gram of glucose requires a certain definite amount of insulin for its complete metabolism, and that in the absence of this complete metabolism of glucose certain higher fatty acids fail to metabolise normally, but, instead, produce a state of acidosis. As has been pointed out many times, when an organ is diseased it is advisable to decrease its function as much as possible on the theory that an organ at rest will attempt repair, or, at least, the disease process may be checked. Theoretically, an excessive amount of glucose in the blood stream would overstimulate the insulin-producing tissue of the pancreas, thus adding materially to the downward progress of the disease. The prevention of this state by bringing about a normal blood sugar is the basis of the undernutrition regime of Allen and Joslyn, and the high-fat, low-protein and carbohydrate scheme of Newburgh and Marsh. But when we meet a situation where a sufficient caloric intake can not be maintained without glycosuria and hyperglycemia, it is necessary for us to supply sufficient insulin to oxidize the excess glucose, thus relieving the overstimulation of the pancreatic function, and insuring

the oxidization of sufficient glucose to dispose of the higher fatty acids which minimize the danger of acidosis. Therefore, when a patient is placed upon a maintenance diet, so balanced as to contain the required amount of protein to maintain the nitrogen equilibrium, and the absolute minimal amount of carbohydrate theoretically necessary to furnish glucose, which, if properly dissociated, will insure the proper metabolism of sufficient fat to make up the required number of calories, and sugar continues to appear in the urine, it is necessary to inject insulin. The amount of insulin necessary to inject is based on the ability of one unit of the standardized product to dissociate two grams of glucose. Thus, if a child on maintenance diet excreted daily 20 grams of glucose, one would inject 10 units of insulin.

As you all know, there is some danger associated with the injection of insulin, and it should be used only when it is impossible to control glycosuria, by dietetic means. Furthermore to continue to give insulin safely, one must either resort to frequent blood sugar analysis or allow the patient to show a trace of sugar in the urine daily, which, in a way, defeats our attempts to maintain a state of rest for the pancreatic gland, because of a consequent hyperglycemia.

Children seem to tolerate insulin well, but for some reason, possibly because of a more rapid metabolism, we find that, where it is necessary to give more than 10 units daily, better results are obtained if part is given at breakfast time in the morning, and the balance in the midafternoon. Because of the danger of an overdose, it is advisable to have orange juice readily available. (A few ounces will very rapidly overcome the ill effects of an overdose.) We have advised carrying a bottle of orange juice when traveling or even on short auto trips. Another point of value is that insulin should not be given while the patient is asleep, or just before going to sleep, for fear of a reaction without warning. Children object to hypodermic injections, but, if we use a fine, sharp needle and inject each time in the same spot, a callus soon forms, and the child feels very little discomfort.

In case of coma, or impending coma, insulin may be used freely, injections of 15 to 20 units every six hours being advisable. However, knowing that insulin acts only on the glucose and that it is this act of insulin oxidizing glucose which clears up the acetone, one should give 100 c.c. orange juice by mouth every three hours, or 10 grams of dextros by bowel. The form of

5 per cent dextrose solution is the best. Borka<sup>8</sup> advises lavage of the stomach with warm 5 per cent soda bicarbonate solution, lavage of the lower bowel with warm soap suds, and catheterization of the bladder every three hours.

CASE 3.—Esther B., aged 8. May 9, 1923.

History: Family history, negative. No previous, serious illness nor contagious disease. For the past two weeks began to wet the bed and to drink large amounts of water and developed an enormous appetite. Had been going to school until 4 days before seen, at which time she complained of being very tired, unusual appetite, was vomiting, and had become very listless, and wanted to lie down and sleep most of the time. For the past two days her cheeks had been flushed and the skin very dry, respiration sighing in character.

Physical examination: Examination disclosed a gracefully built child, flushed cheeks, sighing respiration, very much inflamed throat, moderate sized tonsils, many carious teeth with infected gums, and the urine was loaded with sugar, acetone, and diacetic acid, had slight fever two days ago. Blood sugar determined at .41. Before entering, the child had been starved for two days, and because of the marked acidosis we thought it advisable to immediately give her food. The first day she had 20 grams protein, 35 grams fat, and 22 grams of carbohydrate. The following day, she had 25 grams protein, 50 grams fat, 30 grams carbohydrate. During this period she was excreting large quantities of sugar, acetone, and diacetic acid, was very somnolent, and on the third day was vomiting all food. We did not know at this time how much of the vomiting was due to the diabetes, and how much to the very much inflamed throat. However, on the third day she was vomiting practically all her food, and the acidosis was evidently increasing. She was given glucose by bowel, and 15 units of insulin, with some improvement. On the following day she was given more insulin and glucose by bowel. On the fifth day she was able to retain food by mouth, still excreting large quantities of sugar, acetone, and diacetic acid. Insulin was increased to 20 units; on the following day 25 units; and the carbohydrate, mostly in the form of orange juice, was largely increased. The danger of coma was apparently past, and acidosis was decreasing. On the eighth day the insulin was discontinued, and the patient was still excreting from 16 to 19 grams of sugar with acetone and diacetic acid present, on an intake of protein 15 grams, fat 20 grams and carbohydrate 60 grams. On the tenth day, she was put on a high-fat diet, containing protein 18 grams, fat 95 grams, and carbohydrate 18 grams. The first day succeeding that she only excreted 3.7 grams of sugar, and from that time on was sugar free.

She did not show a gain in weight during this period, but there was a very general improvement in her general condition, having become shortly after starting the high-fat diet, anxious to be up and around. After the diet was run up to 1,400 calories, she started to gain weight rapidly, and was discharged on 1,500 calories per day, 135 of which was fat, 25 protein, and 24.5 carbohydrate.

We have not seen this child since her discharge



from the hospital, but have heard through her physician that she has continued to gain in weight, has been sugar free, and seems quite happy and normal.

CASE 4.—Charles K., aged 7. May 1, 1923.

History: The patient was known to have had diabetes for two years, no previous infection, had gotten along fairly well for the first year on a restricted diet, and then took the influenza in January of this year. Since that time, downward progress has been very marked. The diet had been cut down from time to time until he was receiving very little nourishment, and in spite of that excreting large quantities of sugar in his urine. His diet during this long period had been a low fat, high protein, and a small amount of carbohydrate, the carbohydrate being made up almost entirely of 3 to 5 per cent vegetables. In the last week or two the mother had become much alarmed because of the boy's very rapid loss in weight, extreme pallor, acetone breath, listlessness, and difficulty in respiration. He was brought in in the hopes that insulin treatment might restore him to health.

Physical examination: Examination disclosed a boy very much emaciated, marked pallor, very listless, with attacks of air-hunger. His general examination proved negative. The urine contained a large amount of acetone and no sugar. There were a considerable amount of pus and a few hyaline casts. His blood sugar was .31. Because of the acidosis it was thought advisable to give him some food immediately. He was given 22 grams protein, 60 grams fat, and 22 grams carbohydrate, which was continued for two days. The first day on this diet he excreted 10 grams of sugar, and the next day, owing to the loss of part of the specimen, a sugar determination was not made. On practically the same diet on the fourth day he excreted 15 grams of sugar, always showing large amounts of acetone and occasional diacetic acid. His diet was then increased from time to time until we were giving 25 grams protein, 75 grams of fat, and 60 grams of carbohydrate with the idea of determining the sugar tolerance and to find out how much in-

sulin it would be necessary to give. We found that he was excreting from 45 to 60 grams of sugar on a carbohydrate intake of 60 grams, which made him almost a total diabetic. He was then given 15 units of insulin each day, with a reduction in the amount of sugar excretion, but still showing acetone and diacetic acid. It was found that on a diet of 25 grams protein, 60 fat, and 60 carbohydrate, with 25 units of insulin, he would still excrete as high as 19 grams of sugar. During the period he still had constant attacks of air-hunger, was in bed most of the time, and had a fairly good appetite, but was very listless and disinterested in play. At this time his diet was changed to 19 grams protein, 95 fat and 18 carbohydrate with insulin withdrawn. On this diet, which contained more calories than before, his sugar excretion, without insulin, dropped to about 13 grams. He was then put on insulin again, and with 10 units of insulin continued to excrete from 6 to 8 grams of sugar daily. The diet was gradually increased to contain approximately 1,200 calories, after which time the air-hunger disappeared, and he began to make a steady gain in weight, felt better, wanted to be up, and for the first time in two weeks was interested in play. When he left the hospital his insulin was increased to 10 units, night and morning, with a diet of 1,200 calories,—protein 21 grams, fat 115 grams, and carbohydrate 21 grams. He continued to gain in weight and felt well when last heard from, although still showing a trace of sugar in the urine.

#### BIBLIOGRAPHY

1. Arch. Internal Medicine, Vol. 31, No. 4, p. 455, April 15, 1923.
2. Jour. of the A. M. A., Joslyn, Vol. 78, No. 20, 1506, May 20, 1922.
3. Arch. Internal Medicine, Vol. 28, p. 125, 1921.
4. Elements of the Science of Nutrition., Ed. 3, pp. 86, 1917.
5. Journal of Biological Chemistry, Vol. 50, p. xxviii, 1922.
6. Medical Clinics of North America, Vol. 7, No. 1, p. 20, July, 1923.
7. Arch. Internal Medicine, Vol. 31, No. 4, p. 484, April 15, 1923.
8. Medical Clinics of North America, Vol. 7, No. 1, p. 42, July, 1923.

## SPINAL ANALGESIA\*

By GEORGE F. THOMPSON, B.Sc., M.D., F.A.C.S.

CHICAGO, ILLINOIS

While getting ready to administer the anesthetic I shall show a few operated cases.

#### POSTOPERATIVE CASE—CAVERNOUS

I operated on this patient under spinal analgesia day before yesterday at 9 o'clock, and you see she is in good condition.

(To the patient): Did we hurt you during the operation?

Answer: Yes.

\*Presented at the annual meeting of the Soo Surgical Association.

Question: What hurt you?

Answer: Somebody mashed me on the chest.

One thing you have to be careful about is that the interne does not lie on the patient's chest while helping you to operate. Internes like to go to sleep leaning on the chest while you are doing a laparotomy. Right above the field of operation is a zone of hyperesthesia which hurts a great deal, and that is why she imagined she was being "mashed."

Somebody asked me if I used the Trendelen-

burg position. (Demonstrating.) Yes it can be used with either a light or heavy solution. I inject the spinal anesthetic in such a way as to keep the solution away from the medulla for some time. After the patient has been in this position for about ten minutes the solution does not gravitate much further and I then put him in the Trendelenburg, and never have any trouble when that plan is followed.

This patient had an old pus tube, and it was a case of uterine fibroids with beginning degeneration of one of the fibroids. There might be a starting of malignancy, but more likely it was the usual softening.

#### POSTOPERATIVE CASE—HYSTERECTOMY LYMPHANGIOMA

This girl, aged about 15, came into the medical ward of the hospital some time ago, the interne in the examining room making a diagnosis of cavernous lymphangioma of the right leg since 1916. She was in good health up to that time, when she fell and hurt her right leg, but there was nothing special about the injury. Immediately after this the right leg began to swell around the tibia, extending upward to the knee and then to the hip. Prior to July of this year it was never painful, but at this time she began to have dull, aching pain, which came on only when she was standing. Swelling continues in the afternoon and evening and the limb is smaller in the morning. The left leg never has been swollen. On Monday of this week I also operated on her under spinal analgesia. I do not use it in children, but you can use it in young patients.

She had here a large bulging sac which stood up about like that (indicating), and as the skin was thin it could be grasped between the fingers and moved; it could be compressed and emptied entirely, but as soon as released it would fill again. There was no way, by pressing on the saphenous, above or below, by which we could prevent it from filling after it was empty. Now, as you will notice, she has a swelling down here (inner side of thigh). It does not feel like a large vein, but like a soft mass of tissue, which extends into the leg. This leg is larger than the other by one-half or three-quarters of an inch. You will notice that when she stands the foot puffs right up, and if you hold the hand up here and press the thumb over here and empty it for a while, then let go, it will swell right up again. Over here where the thickening is you feel throughout that you are

not picking up simply the skin, but other tissues with it, but squeezing it will cause it to stand right up. On letting go it will relax, and when she has been on her feet a good deal that is more marked.

The diagnosis on the medical side was *cavernous hemangioma*, while, as stated, the interne in the examining room diagnosed the case as *cavernous lymphangioma*. I made an incision above and came down upon it, and a pint at least of pure lymph poured out. It kept coming out and coming out before it began to subside. I made incisions all through the tumor, some cavernous spaces being as large as a hazelnut. I did not know exactly what to do. If there was a cavernous hemangioma there I intended to go down and dissect out the whole thing; but I did not like to shut off the lymph supply of the leg altogether because there is no anastomosis between the superficial and deep lymphatics, therefore I thought it better to leave it alone and stitch it up. When the bandage is off it does not fill up any more. I took a wedge-shaped piece out of the large mass over the saphenous opening, reducing the size of it, then sewed it up with buried sutures of catgut in the tumor tissue and silkworm for the skin. I considered the feasibility of doing a Kondoleon operation at the same time if I could remove the entire lymphangioma, but concluded it would be better to observe her and see what happened. I can do that later. I have never had any previous experience with lymphangiomias of such an extensive nature.

#### POSTOPERATIVE CASE—FRACTURE OF THE FEMUR

This is a patient who sustained a fracture of the femur a short time ago. She came in the 8th of this month (two weeks ago). (Exhibiting *x-rays*): You see a very long oblique and also partly spiral fracture of the femur. Several attempts at reduction of various types were made, with extension and manipulation on the Hawley table, in the course of a few days. I like to get fracture patients up early. Dr. Speed says the secret of treating these patients is to put them up right away and get extension. When you wait a few days to put on apparatus the spasm of the muscles has drawn up the lower fragment and you cannot get it down. Furthermore, the blood is clotted pretty firm and you have to manipulate rather hard to dislodge it. For instance, in fracture of both bones of the leg I anesthetize the patient, reduce the



fracture as soon as I can, and put it in a cast. The cast at least keeps the fragments from overriding. In this case, after several attempts at reduction had failed, I operated on her, a week ago to-day. This was also done under spinal analgesia, and the case was a very easy, nice one. We simply induced spinal analgesia, reduced the fracture, and put on the Parham band. She is running along a normal course, and I hope she will continue to do so. It is so easy with spinal analgesia to pull the limb out, for there is no spasm of the muscles. She is in a body cast, and there is a window in it already. She had never had general anesthesia of any kind and did not know the operation was being done until something fell, when she thought an accident had happened to her. Under this method the patient has enough anesthesia to last several hours and comes out without pain or muscular spasm. Many retention appliances do not hold simply for the reason that after getting perfect reduction you put the patient in a body cast or other retention apparatus and he wiggles around the bed and it is hard to restrain them, whereas with spinal you have perfect relaxation.

#### POSTOPERATIVE CASE—UNUNITED FRACTURE OF THE NECK OF THE FEMUR

This is a patient who had ununited fracture of the neck of the femur. She came in two weeks after the accident and after attempts at reduction by means of extension had failed. There was considerable displacement, so I drove a nail through the head of the femur. This is the original plate before the nail was put in. In order to control the head I made two incisions, one over the head in front of the joint and the other over the trochanter. The reason I did this is because very frequently the head is in malposition and the nail does not enter it properly or may go way through the head. You see it is in not quite at right angles. I think it has moved a little since the limb was taken out of the retention apparatus. There is not much evidence of callus around there. I feel the head of the nail sticking out and intend to remove it very soon. I am not very much in favor of putting a nail in the head of the femur. This patient is beginning to get around a little bit. Of course, there is a good deal of ankylosis. While bands and nails serve to hold the fragments in position, they do interfere with union. I think nails or bands should be removed as soon as the ordinary retention apparatus will

hold the fragments in position, not leaving them any length of time.

#### OPERATION FOR DOUBLE INGUINAL HERNIA

*Production of anesthesia.*—We are now making puncture between the third and fourth lumbar vertebræ for the purpose of withdrawing about 3 c.c. of spinal fluid. We then inject the solution, 3 c.c. of a 5 per cent solution of novocain, after diluting it with an equal amount of spinal fluid by aspirating that amount into the syringe. Then we let the patient down before the fluid descends, because the specific gravity of this solution is slightly greater than that of the spinal fluid. It gravitates and will come up to the concavity in the dorsal region. If glucose is added it gravitates more quickly.

Local anesthesia is all right, but for several reasons I prefer spinal analgesia. I have spoken to the Association a couple of times about it and feel that it is not necessary to go over the technic again. To date I have operated on about 1,100 cases under spinal analgesia, with but one fatality, and that was a man who was very septic. That one fatality came very quickly. In a few cases there has been considerable postoperative shock, but I have had nothing but the transient effects which you get with any anesthetic.

This man has had 3 c.c. of spinal fluid withdrawn, with injection of 3 c.c. of a 5 per cent solution of novocain, which is a little over 2 grains. One objection I have to local anesthesia is that in most cases more or less pain is produced. Another point in favor of spinal analgesia is that the anatomical parts are not disturbed at all by this form of anesthesia. Here you have no edema or straining or coughing or anything else to interfere with the operation. (Operating.)

You see he has a very large ring. I am going to make a rather large incision in the external oblique. I do not think there is a sac of any consequence in this hernia on the right side. Here is the vas, and I am going to split the fascia as though I expected a sac here. I have here the sac, which is rather easy to find in this case. Notice the vas as it turns downward and inward and then the veins here.

Just before the war I operated on a doctor under local. Shortly after he sent a friend to me for operation under local anesthesia, but I did it under spinal. The doctor came in before I was through, and said: "You submitted me to a lot of torture compared to this case." Another

thing, when you do a local on the abdomen and get in, you hurt. With this you do not, except once in a while, as in the case of traction on the kidney pedicle and you have to give a few whiffs of gas at that time.

Just a through-and-through suture there to pull the neck of the sac together, then two or three sutures over and over to keep it from slipping. If it is a large sac I shut it off.

Where we have so much relaxation of tissues as we have here I prefer to do an imbrication operation. Going down below Poupart's ligament, right on the pubic spine, coming through underneath the cord, take up the edge of the internal oblique and back again and mattress the internal oblique and back on the inner side of Poupart's, then pick up the edge of the external oblique, and then back out through the original opening. I think I shall have to put one suture up above here. I prefer No. 1 catgut double to a single. I never use kangaroo tendon. I generally begin suture of the external oblique down near the pubes so I can better regulate the size of the ring.

To the patient: Did I hurt you?

Answer: No.

We have no nausea or pallor or other unfavorable symptoms. Recently a number of operators have been using a solution of caffein citrate in these cases where they have a low blood pressure, I think 0.5 grain, and operate under spinal anesthesia. In an article published a couple of weeks ago one author states that he keeps a solution of caffein citrate on hand, and if the patient shows any symptoms of collapse he injects it into the canal.

Question: You do not use adrenalin?

Dr. Thompson: No, I do not. The novocain tablets have about 1/800 grain in each.

Question: How long before the patient will begin to feel sensation?

Answer: That varies a great deal. In this case anesthesia occurred very quickly; in three minutes the patient was quite anesthetic. In the majority of cases it takes about ten minutes. Anesthesia lasts quite a long time, from an hour to three hours. In operating on a case of hypospadias, which usually takes three hours to complete, I did it all under spinal. So you sometimes get a prolonged anesthesia.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of December 12, 1923

DR. A. S. HAMILTON, presiding.

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 12, 1923, at 8 p. m. The President, Dr. A. S. Hamilton, called the meeting to order. There were 30 members and 1 visitor present.

Dr. J. T. Christison read the following memorial of the life of Dr. Warren A. Dennis, a former president of the Academy:

Dr. Warren Arthur Dennis was born in Walworth County, Wisconsin, December 5, 1869. His death occurred in St. Paul, November 8, 1923, after a protracted illness, from pneumonia. He is survived by his wife and six children.

He was a graduate of the University of Wisconsin in 1891, receiving the degree of B.L. Later he entered the Medical School of the University of Minnesota, graduating in the class of 1896. After serving an internship of one year in the City and County Hospital in St. Paul, he became associated with the late Dr. C. A. Wheaton, one of the most highly respected surgeons of his day.

His professional life was devoted almost ex-

clusively to the practice of surgery, in which branch of the profession he was regarded a master. While excelling in his own specialty he always showed a keen interest in all branches of medical science. It was this outstanding quality which endeared him to his medical friends and associates, and helped in cementing friendship which was so enduring. His frank sympathetic nature won him the everlasting esteem and reverence of his patients, whom he was untiring in his efforts to serve.

Dr. Dennis enjoyed an enviable war record, having served in the Spanish-American War as a major. During the late war he attained the rank of Lieutenant-Colonel, serving with the 88th Overseas Division, where he did notable work in brain surgery.

While leading a very busy life Dr. Dennis was of a studious nature and was well versed in the latest problems of surgery. He was active in the many medical and surgical societies to which he belonged, and was prominent as an officer in most of them, and was an active attendant and frequent contributor to all of these organizations.

Our friend and confrere has departed, but we shall ever cherish the noble attributes of one so



dearly loved and respected by a sorrowing family, a bereaved profession and a saddened public.

Signed—J. T. CHRISTISON,  
C. N. MCCLOUD,  
FRANK E. BURCH.

The following candidates were elected to membership in the Academy: Dr. Wm. R. Murray (Minneapolis) and Dr. Carl B. Drake (St. Paul) were elected as active members, and Dr. W. A. Coventry, of Duluth, and Dr. M. S. Henderson, of Rochester, were elected associate members.

There were no papers given at this meeting, but the following members reported cases:

1. DR. WM. LERCHE (St. Paul) showed lantern slides of several cases of suppuration in the posterior mediastinum that he operated upon, and also cases of esophageal and tracheal fistulæ following mediastinal suppuration.

In connection with these cases, Dr. R. E. Scammon discussed the anatomy of the neck and mediastinum, and its embryological development.

1. DR. HENRY L. ULRICH reported a case of bilateral hydronephrosis and hydro-ureter of unknown origin. A gross specimen was shown.

C. R., white, male, chauffeur, aged 18. Was first admitted to the hospital on October 14, discharged on October 19, re-admitted on October 21, and died October 28.

The family history was thought to be of some importance in that one of his brothers has talipes equinus and one sister has achondroplasia. The rest of the family was said to be normal. The patient had a number of the childhood diseases, was ill for three months at the age of twelve with typhoid fever and a so-called "blood poisoning" at the age of thirteen, at which time he was ill for six months. Although the patient stated that prior to the onset of the present illness he had been well, subsequent investigations showed that he had not been able to do his work in the usual manner for possibly one or two months previously. On October first he was awakened from his sleep with diffuse cramps throughout the abdomen. This distress interfered with his sleep and continued, though less severe, up to the time of admission. On October 2, he became nauseated and vomited, and this persisted during a period of two weeks. All his symptoms were less severe when in bed. A yellowish discoloration of the skin was noted at the beginning of the illness. In the interval between his discharge and second admission, it was said that he had been unconscious for a few minutes at one time. He was more thirsty than usual and had passed what he thought to be a greater quantity of urine than normal. Cramps in the legs occurring at night during the past four years was another symptom complained of.

On physical examination the patient was found to be fairly well-developed and somewhat undernourished. He appeared much older than the age given. His mentality seemed below par. The skin and mucous membranes were pale. There was no cyanosis, and there was thought to be some jaundice of the scleræ. There was no edema. The submaxillary and anterior cervical glands were palpable. The peripheral arteries were soft. The pulse was regular and a good quality. His blood pres-

sure was 118-90. During observation, the highest systolic blood pressure was 126, and the highest diastolic was 90. The hand was large and angular in appearance. The hair was sparse; the pupils were equal and regular and reacted normally to light and accommodation. There was no nystagmus. Pyorrhea alveolaris was present. There was a diffuse bilateral enlargement of the thyroid. The thorax was symmetrical. Harrison's grooves present; a slight impairment of tactile fremitus and diminished vesicular breathing were noted over the left lower lobe posteriorly. No other physical findings were made out in the examination of the lungs.

There was no bulging of the precordium and no visible cardiac impulse. A definite thrill or rub was noted on palpation over the precordium. The percussion dulness of the heart measured 2.5 cm. and 9 cm. to the right and left of the midline, respectively. On auscultation a harsh to-and-fro friction sound corresponding to the palpable thrill mentioned was heard during all phases of respiration.

There was no evidence of valvular disease. The vascular signs associated with adherent pericardium, as well as the retractive phenomena, were not observed. There were no abdominal masses. The abdominal muscles were tense at all times. The bladder was not found to be enlarged.

On admission it was thought that an intention tremor, an ankle clonus, speech disturbance, and Babinski (left) were present. None of these signs except his slow speech was apparent or found while on the ward. He was generally hyperesthetic, and the tendon reflexes were hyperactive. The fundus examination was normal.

A number of urinalyses showed specific gravity 1010-1012; reaction, usually acid; albumin, heavy traces, 1 plus, —3 plus. There were many pus cells and an occasional red cell. No casts were seen on any examination. There was no bile in the urine. On the days that the intake and output of fluid were measured, it was found that he was taking in about 700 c.c. and excreting about 400 c.c. of urine. There was no incontinence of urine. The phenolsulphonephthalein tests on several occasions showed no return of the dye.

The blood examination shows: hemoglobin 42 per cent; R. B. C., 2,440,000; W. B. C., 8,900; differential count and morphology, normal. Later the hemoglobin was 37 per cent; 2,060,000 erythrocytes and 9,300 leucocytes. The Wassermann reaction was negative. The blood creatinin was 8.3 mgs. per 100 c.c. The urea nitrogen, 221 mgs.; the blood sugar, 17 per cent. Later the creatinin was 8.8 mgs.; the urea nitrogen, 244 mgs.; uric acid, 9.6 mgs.; alkaline reserve, 20.

The x-ray of the heart was taken at a distance of six feet and reported as showing cardiac hypertrophy and dilatation. The outline suggested a hypertension type. The sella turcica was reported as very small, and plates of the kidneys were reported as normal in size, shape, and position. The temperature varied between 96° and 99°. The pulse was usually about 90, and the respiration not more than 24.

The patient's breathing became labored. At times an uremic odor was noted on the breath. He be-

came more and more drowsy, delirious, and finally comatose. He had frequent nose bleeds and vomited. Apparently his hearing was impaired. Toward the last a cardiac irregularity was noted, with increased rate up to 128. A cystoscopic examination was requested, but not made.

The patient died October 28. The clinical diagnosis was:

1. Acute fibrinous pericarditis.
2. Renal insufficiency.

The post-mortem revealed a double hydronephrosis, double hydro-ureters. The ureters were enormously enlarged, and there was very little kidney tissue left, only one pole of the right kidney. The bladder was slightly dilated. It looked like a paralytic bladder. There was absolutely no obstruction anywhere in the urethra to account for this dilatation.

*Comment:* This boy was evidently suffering from congenital hydronephrosis, and the remarkable thing about this case is that he should have lived to be nineteen years old. I am acquainted with only one similar case, of which the explanation was that the condition was due to multiple sclerosis. At least this disease was associated with similar findings. This boy's spinal cord was negative as far as sclerosis was concerned, so we shall have to attribute this boy's condition to a congenital lesion.

#### DISCUSSION

DR. OWRE: I saw this case at post-mortem, and there was absolutely nothing to account for the hydronephrosis. I cannot account for it unless it was congenital, and yet pathologists tell us there is no such thing. I had one case several years ago, of a boy fourteen years of age, in which I took out the kidney and ureter, and the ureter was greatly enlarged.

DR. FARR: Last year Dr. Brown, of Detroit, Mich., reported about 100 autopsies on children or embryos that he had collected, with 66 per cent malformations of the genito-urinary tract. He described every deformity of the kidney and ureter that I have ever seen, or heard of, or read about.

DR. A. E. Benjamin reported three cases of diseased thyroid in one family. Mother and two daughters. Two toxic thyroids, one colloid with toxic symptoms.

CASE 1.—Mrs. E., aged 50; housewife; weight, 150; generally well.

Complaint: Enlarged and troublesome thyroid for about twenty years. Quite nervous.

Complete history record not found.

Examination: Thyroid enlarged. Right lobe the size of an orange; left, half as large.

Diagnosis (pre-operative): Cystic goiter.

Treatment: Operation September 4, 1913, at St. Barnabas. Incision, collar. Sternothyroid and sternohyoid muscles clamped transversely and severed. Superior and inferior blood vessels of lobes clamped with forceps. Diseased interior portion of lobes removed, leaving most of the capsules. Blood supply ligated with chromic cat gut. Capsule and remaining portions stitched with plain catgut. Muscles and fascia were stitched with chromic catgut. Small rubber drain inserted.

Specimen: Portion removed contained colloid ma-

terial. Some cysts. Degenerating and hemorrhagic areas.

Results: Pulse rapid for a time, but recovery was complete, and the patient has been well ever since operation.

CASE 2.—Mrs. L. (daughter of Case 1), aged 24; housewife; married one year, no children; weight, 100.

Complaint and symptoms: Perspires considerably. Extremely nervous and trembly and rapid pulse, especially upon exertion. Nauseated and vomited, and bowels loose. Appetite irregular. Loss of flesh and symptoms progressed. Pulse, 120-160. Was kept in a country hospital until her symptoms subsided and was then removed to Minneapolis where special diet, sedatives, and general good care were given.

History: Family history, negative, except that mother was operated on for colloid cystic goiter in 1913. Personal history: usual children's diseases. Scarlet fever at 7 years; influenza in 1920. Menstrual history: onset at 15 years: painful and scanty; missed last two months.

Examination: Head, enlarged turbinate, protrusion of eyeballs, and uncertain vision. Tonsils irregular, not diseased. Right thyroid enlarged, twice the normal size. Thorax, normal except rapid heart. Abdomen, practically normal. Pelvis: slight retrocession of uterus, some enlargement of left ovary, and prolapsed. Extremities: unsteady and trembling hands. Urine negative; hemoglobin, 70 per cent; blood pressure, 138-70; temperature 98.6°-100.6°. X-ray treatment for enlarged thyroid with little improvement.

Diagnosis (pre-operative): Exophthalmic toxic goiter.

Operation: 1. September 21, 1920. Anesthetic, local. Pulse, 160. Upper pole of right thyroid ligated. Patient was very nervous and excited during the procedure, after which he symptoms continued for several days. September 24, 1920, pulse 118; condition, good.

2. October 12, 1920. Local anesthetic and some gas. Blood vessels of both lobes ligated and the right lobe resected. Patient was very nervous at the time of operation and vomited considerably following it. Her condition gradually improved, and she left the hospital October 23, 1920. Condition, good; and pulse, 130-140.

3. May 21, 1921. Anesthetic, gas and novocaine were used. Pulse between 160 and 128 during the operation. Complete removal of all diseased tissue on the right side was done. There were many adhesions present from former operations. Plain catgut was passed back and forth through the capsule to control hemorrhage. The pulse when she left the hospital was 100. She was in good condition.

Section from thyroid: Many large dilated acini, containing colloid. The epithelium lining the acini is of low cuboidal type. There are also a number of solid masses of cells in which the epithelium appears more cylindrical and active.

Diagnosis: Mixed goiter, colloid and toxic adenoma.

Results: Patient made a gradual recovery; gained in weight, and has been in good health since, ex-



cepting a little nervous, caused from disturbance of an abscessed tooth.

October 1923: Blood pressure 138-100; pulse, 130; weight, 125; hemoglobin, 85 per cent.

CASE 3.—Miss E. (daughter of Case 1.), aged 22; household duties; weight, 116. Noticed neck was swollen and painful to pressure. Very nervous.

History: Family history, negative except the mother, who had a colloid cystic goiter and the sister who had a mixed colloid and toxic adenoma.

Patient has been quite well, with frequent frontal headaches, eyes rather weak but never examined; sore throat frequently; tonsillitis, once; heart, quite rapid the last few weeks; appetite, good; digestion, good; bowels, regular; menstruation, normal.

Examination; Nose, some redness inside. Some inflammation of tonsils, left embedded; right thyroid, three times normal size; cardiac pulsation very rapid; abdomen and pelvis, negative; urine, negative; blood pressure, 140-60; temperature, 99.6°; hemoglobin, 80 per cent; W. B. C., 7,300; basal metabolism, 57; pulse, 110-140.

Diagnosis: exophthalmic goiter.

Operation:

1st operation: April 22, 1922. Anesthetic, novocain and gas. Right inferior artery ligated with plain catgut No. 1. Left inferior artery ligated. Right superior artery ligated. Part of central portion of right lobe included in addition suture. Pulse when left hospital, 110-120. Improved. June 6, 1922,

temperature, 99.8°; pulse, 132; weight, 97¾; generally well, but quite nervous. September 13, 1922; temperature, 99.4°; pulse, 90-100, hemoglobin, 75 per cent; blood pressure, 136-70. Still quite nervous.

2d operation: September 16, 1922. Anesthetic, gas and ether; pulse, 118-120 before operation; respiration, 28. Three-fourths of right lobe removed, removing inner diseased portion. Hemorrhage controlled by plain catgut suture back and forth. Gradually improved and left hospital in fairly good condition, but somewhat nervous; pulse, 98. October 18, 1922: temperature, 99.2°; pulse, 140-160; weight, 106½; hemoglobin, 80 per cent; blood pressure, 130-76; looks well; feels good. February 28, 1923; examination showed slight mitral stenosis; thyroid considerably enlarged and soft. Operation postponed until in better condition. Basal metabolism, +18.

3d operation: April 20, 1923. Anesthetic, local and gas; pulse before operation, 120; during operation, 160-140. Most of inner left thyroid removed. Capsule stitched with plain catgut. There were many adhesions present. The right thyroid was about normal size. Discharged from hospital May 3, 1923. Condition, good; pulse, 110.

Specimen: April 20, 1922, hypertrophy of thyroid. Results: Patient improved very much. October 16, 1923: blood pressure, 130-74; pulse 90; weight, 116½; feels very well.

—JOHN E. HYNES, M.D.,  
Secretary.

## THE CLINICAL LABORATORY: VIII. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL, MINNESOTA

### HEMOGLOBIN

Considerable variation may be found in the hemoglobin percentage. One hundred per cent is used as the standard for normal male adults and 90 to 95 per cent for normal female adults. A high percentage is found in new-born infants and a lower percentage during the period of infancy. During childhood and especially during the period of puberty, the percentage of hemoglobin is relatively lower than in the normal adult.

The importance of careful hemoglobin estimation is well illustrated by its value in determining whether or not the patient with pallor is anemic. Diseases of the blood, such as organic anemia or other conditions, should not be diagnosed on the strength of a hemoglobin estimation alone. Together with a hemoglobin percentage finding, one should consider the red cell count, the pres-

ence or absence of abnormal red cells, and the color index.

Frequently much depends upon the correct hemoglobin estimation in given cases, as in the diagnosis of pernicious anemia and chlorosis; therefore great care should be exercised as to the manner in which the hemoglobin percentage is estimated. If the Tallquist method is used at the bedside, the examination should be done with as much care as possible, as all the usual methods represent estimates and are lacking in accuracy. The physician should require a statement as to the method used in the blood examinations.

Sentry\* has recently made a careful study of the various methods of hemoglobin determination now in use. After comparing the methods of Gower, Fleische, Tallquist, Sahli, Dare, Newcomer, and Cohen and Smith, the Cohen and Smith acid hematin method was used as a standard, the other methods being checked against it. The conclusion was reached from

\*This is the eighth of a series of articles by Dr. King on the Clinical Laboratory.

the work, that the standard Dare instrument is practical and fairly reliable for determinations below 70 per cent, and that for routine work the well-known Tallquist is perhaps as accurate as the Dare method.

#### COAGULATION AND BLEEDING TIMES

The coagulation time is an important factor in the examination of blood. Warwick\* has reviewed the literature on "The Value of the Routine Determination of Bleeding and Coagulation Times on New-born Infants." This author, after having studied the results of taking the coagulation and bleeding times as a routine measure on 250 infants, concludes that such tests should be adopted as a routine measure upon every new-born infant on the third, fifth, and ninth days following birth. Such tests are necessary, not only for diagnosis, but in order that correct treatment may be instituted. It not infrequently happens that hemophiliac infants may die from hemorrhage. Such deaths often may be prevented by the diagnosis of hemophilia and the administration of serum preparations or other treatment.

The normal coagulation time in adults is regarded as from three to five minutes. In infants and small children the normal coagulation time is five to ten minutes. It is often desirable, sometimes quite necessary, to obtain the coagulation time of the blood as a pre-operative procedure. *Prolongation of the coagulation time* accompanies jaundice, sepsis, syphilis, hemophilia, lymphatic leukemia, splenic anemia, and some of the specific infectious diseases, especially lobar pneumonia. *The clotting time is decreased* in leukemia, diabetes, and endocarditis.

Great care should be exercised in determining the coagulation time and careful discrimination should be given in choosing the method to be used. Block\* describes a method by which he states he has been able to diagnose variations in coagulation time in which other methods were unsuccessful.

The bleeding time does not always correspond with the coagulation time. The bleeding time is determined by the simple procedure of making a small cut in the finger or lobe of the ear. As the blood is shed, it is removed by means of blotting paper and the total duration of the hemorrhage is designated as the bleeding time. The normal bleeding time is regarded as from one to three minutes.

#### RESISTANCE OF BLOOD CELLS, OR FRAGILITY

The resistance of the red blood cells is determined by subjecting the cells to a series of accurately graduated salt solutions. Either the unwashed or washed cells are placed in a series of salt solutions ranging from 0.3 per cent to 0.6 per cent.

Normal erythrocytes begin to dissolve or undergo hemolysis in 0.425 per cent to 0.350 per cent salt solution. As the resistance of red blood depends chiefly upon the osmotic tension of the plasma, as well as upon the condition of the erythrocytes themselves, such a test is frequently of diagnostic aid. *The diminished resistance of the red cells* is found in cases of severe anemia, hyperpyrexia, and in those cases in which there are present in the blood bacterial toxins and an excess of CO<sub>2</sub>. It is, therefore, necessary sometimes to conduct the fragility test in order that a careful determination may be made by the physician, as to the degree of toxemic condition present and its influence on the condition of a patient.

#### COLOR INDEX

An estimation showing average amount of hemoglobin in each red blood cell in a given case constitutes the color index. The color index, therefore, consists of an estimation showing whether the percentage of hemoglobin is normal in comparison to the number of red cells. The color index in a normal case (obtained by dividing the percentage of hemoglobin by the percentage of red blood corpuscles) is below one. *The importance of determining color index* is illustrated by the high color index, one plus, found in typical cases of pernicious anemia and the low color index, often 0.5, found in chlorosis.

#### DIFFERENTIAL COUNT AND MORPHOLOGICAL STUDY

No blood examination is complete without a microscopic study of stained morphological elements. In some cases, depending upon the conditions of course, it is necessary only to make a careful examination of a given blood film, properly stained, in order to determine whether or not the blood is relatively normal. If, for instance, an anemic condition is present, a smear of blood examined microscopically will show certain changes which can be readily recognized. If the blood is normal, the red cells will appear uniform in size and color, and the relative normal proportion of leukocytes will be apparent.



On the other hand, should the red cells show considerable variation in size, with distorted forms present, and should some of the red cells be deficient in hemoglobin, as indicated by pale color, a suspicion of anemia may be entertained. In the latter condition a complete blood examination, including the count of white and red cells, coagulation time, hemoglobin estimation,

color index determination and careful differential count, should be made. It may be stated that while the red and white count is of extreme importance, the differential count and careful search for abnormal cellular constituents of the blood should never be omitted. The study of the structure and form of the blood cells affords very valuable data.

## THE AMPUTATION OF THE FAMILY PHYSICIAN; IS THE LINE OF DEMARCATION JUST ABOVE THE EARS?

BY JOHN T. LELAND, M.D.

HERMAN, MINNESOTA

A clinic may be defined as "a body of physicians revolving about a senile molar, who occasionally lapse into horse sense;" and "the family physician as that person who is tolerated to humor grandma."

The autonomic imbalance of the medical profession to-day is a hyperthyroid clinical three-ringed, whoop-jumping contest, on the one hand, and a hypothyroid quoit-pitching lethargy, on the other. In one case the patient is a test-tube; in the other, a peg. The family physician makes a "ringer" because he *knows* the patient; the clinic gets a "reaction" because they find out *why* they *don't* know the patient.

If some genial soul with a sense of humor would take apical focal infection by the nape of the neck and put it out in the back shed with poor old neurasthenia, we might go on with our hominy and rye of true pathology. Our art of diagnostic painting has long enough been infested by this cubistic insect. George Washington died from septic angina, and he had false teeth! If he had gone through to-day's clinic he would have had his tonsils removed to prevent Valley Forge.

A few years ago we were greatly perturbed because of the proteids in cow's milk in feeding the baby; our pneumonia patients were poulticed and steamed; our puerperal cases douched; our typhoids starved; and our opsonic index cross filed. To-day our O. B. cases are versioned for a mess of pottage, our teeth and tonsils extracted because of our own denseness of understanding. (We remember when the ovary and turbinates migrated like the long extinct wild pigeon). What righted these wrongs? A folio of cardiographic, röntgenogramic films,

a gazing at the tongue or palpating the pulse? No, the communion of patient and physician.

All treatment to-day is marked by simplicity, whether its the drainage of surgery or the therapeutic drainage of the internist; the Thomas splint and the like, not bone plates; the rest and diet for constitutional diseases, not the flapperism of organotherapy; and, after all is said and done, the things that are most startling in medicine to-day are the result of exercising horse sense,—open air treatment of burns, no loop gastro-enterostomy, paracentesis for acute otitis, insulin, rest in tuberculosis, extension for arthritis, boiled milk for bottle babies, vitamins; and then some day we shall learn that cancer is but the inability of repair to remove its own scaffolding, and supply the insulin-like needful.

Why does gastric ulcer so frequently show a spring and fall exacerbation?

Why does hypertension, *per se*, so frequently reveal no pathology?

Why does pneumonia, a toxic infection, so frequently end by crisis, that miracle which horse sense has taught us to assist and not *treat*? The answer will be revealed, not by pyrotechnical laboratory staging, but by the learned interpretation of physiology bridged by that subtle technic.

Jenner and his vaccine for smallpox have been the incentive for all of to-day's best serum sellers, but James Carroll by the simple (?) expedient of exterminating the mosquito saved a vast amount of night work in the attempt to perfect a serum for yellow fever.

The Chiropractor will fail because he ignores horse sense, adjustment of the cervical vertebra will not help trifacial neuralgia, neither will it

prevent tonsillitis; he fears horse sense and in the perplexities of his attempts to cure will never arrive because horse sense and he must ever remain strangers. When we so insistently harp on thirty-two teeth do we not come within *one* of playing the accompaniment to the steam calliopic solo of the Chiropractor who twangs his thirty-three vertebræ so sweetly?

Christian Science will never bask in the wholesome association of equine sense because they don't believe that even the jaw-bone of an ass could produce death.

And Coué? There is something in history of soldiers attacking a city, who, as the advancing head of attack, were hidden within a wooden horse; Coué headed his attack with wood, but no horse. We cannot imagine Coué communing with his patients to improve "Every day, in every way, I'm better and better," be-

cause, if he did, he would "better" himself out of a job.

Eugene H. Pool, in summarizing his article, "Management of Surgical Service," states: "It should be emphasized that in any effort toward systematization, the physical mechanism and duties alone must be regulated, *not the spirit and thought*. A routine, inelastic mode of treatment, an inhuman, mechanical attitude toward the patients especially should be avoided. Developments or changes should be in the nature of an evolution, being incorporated as far as possible with existing customs; the disturbing upheaval of revolutionary methods should rarely, if ever, be employed."

Which is a more esthetic way of saying: The physician, be he "clinic" or "family," will commune with his patient and horse sense, and the latter influence so often prevailing makes of him a better physician and man.

## ALIEN PRACTITIONERS

BY AN OLD COUNTRY DOCTOR

The present generation of medical men are watching with dismay the activities of two groups of practitioners known, respectively, as Chiropractors and Osteopaths. The last generation were equally dismayed when they contemplated the conduct of a class known as Homeopaths, whose footprints are now rarely seen, but who are entitled to decent burial alongside of another class known as Eclectics. Both of these irregular groups have passed away or are fading to their end. We raised them both to professional rank by resisting them and by having laws passed forcing them to raise their requirements. We are trying to do the same thing with osteopathy and with chiropractic.

Chiropractic seems to be in the first stage of development and is recruiting itself from the ranks of unskilled labor. Osteopathy seems to be in the second stage of development, as they are doing surgery and practicing obstetrics.

The pathway of medical progress is strewn with the wreckage of numerous false systems, which have grown up, flourished for a time, and passed away. These cults and sects have certain limitations placed on their progress due to the fact that none of them are based on any sound scientific principles. If left to themselves they

become extinct in the course of time. They lack internal balance and are unable to adjust themselves to changing conditions. The germ of permanency is not in them, although we can perpetuate them beyond their allotted span by interfering with them and trying to suppress them. They derive their nourishment from public sympathy and popular credulity and are sure of an ample supply of both, especially if they can make the people believe that they are being persecuted. When laws are passed compelling these pseudophysicians to study anatomy, physiology, chemistry, etc., such laws defeat their own purpose, for, instead of retarding their growth, we simply stabilize them and give them balance. The study of such subjects as anatomy, etc., does not require ability and in itself does not exercise selection, but it brings a better educated class of people, although of no less irrational mind to their banners.

To those who can perceive the essential "nothingness" of their theories the idea of compelling them to spend years in their pursuit seems ridiculous. This method eventually drives them into the general practice of medicine, enjoying all of our rights and privileges. Thereby we acquire a large body of undesirable recruits who



make a brave addition to our already over burdened profession and give point to the proverb that "Chickens come home to roost." If we could only be induced to leave these sects alone or, at the most, try to push them into the path of forces that would cause their extinction we would be much happier for in every instance their end is in view from their beginning.

Homeopathy was a ghost that frightened us for a hundred years. Homeopathy died in spite of our efforts to keep it alive after its followers had deserted to our side. We may be a little hypocritical in expressing so much concern for the public welfare every time we put a Chiropractor in jail, but the public does not seem to appreciate our solicitude. The Chiropractors at present are making a strong play for public sympathy, and every effort on our part to regulate them is played up strongly as an indication of persecution. These sects suffer greatly from internal dissensions and show a tendency to break up into their component parts, which they would do if it were not for our fostering care, which gives them the stability derived from having to face a common enemy. Perhaps there is nothing so black in nature as the hate between a competing Chiropractor and an Osteopath, still they both face one way when they face us. While we are tottering towards perfection ourselves, both these sects lean heavily on us for the support derived from our efforts to destroy them. The Osteopaths, however, have lately shown a disposition to stand on their own feet: they have raised their requirements at our suggestion and are now invading the domain of surgery and obstetrics. When we compel them to study for three or four years we seem to insist that there is something to their art. Our attitude towards them has had much to do with the impression they have made on the public mind. Our opposition gives them importance and causes thousands of partisans to take their side.

Of course we know that when these sects pass away others will immediately grow up to take their place. But we cannot shut our eyes to the fact that where the standards for medical education are kept very high these flourish much less luxuriantly and never assume the importance which they do where the standard of medical education is low. This is an obvious fact of which there can be no dispute, and it also points to the only line of conduct for us to pursue; namely, raise our standards and keep them high, both ethical and educational. We have suffered enough from poor medical education. Do not try to raise their standards, but raise our own. Do not try to lift them up to our level, but let our superiority be such that even the people will notice it. We should try to keep them from wearing our livery and should resist their attempt to usurp all the rights and privileges of the regular profession; but beyond that we should leave them to the mercy of the law of natural selection, which would do to them that which we are unable to do.

We must not be deceived by certain false voices which would have us lower our requirements by shouting that there are not enough doctors—not enough doctors in the country. There are plenty of doctors in the country and far too many in the city. If you doubt this take a stroll through Chicago, where, in some districts, to judge by the signs, half of the people seem to be physicians. Moreover, the automobile has greatly enlarged the sphere of every country doctor. There is nothing for us to fear in the growth of Chiropractic and Osteopathy. We are somewhat to blame ourselves. In a certain way they are an indication of our own unworthiness. Chiropractic has been said to represent the fear in the public mind of the knife. We should not do unnecessary operations.

As a profession we ought to be able to determine our own destiny and escape our enemies by our own intelligence.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

FEBRUARY 1, 1924

## SPEEDING UP EDUCATION

Many discussions on educational problems have been heard this year, and many of them are especially interesting, particularly from those who criticize educational methods of the present day. It seems to the writer that the most important criticism which may be launched against the educational system is that of speed. There seems to be a great tendency on the part of educators to crowd into the uncertain brain cells of most children all of the systems they can possibly think of. But the most dangerous is that of so-called speed contests in the school, and the criticism here is directed against this method in which one case was the focal point of discussion. A boy of thirteen, retarded, as many children are, up to puberty, is a slow thinker. He finds his problems very difficult; he is not able to keep up with his class, and in one of his studies (spelling) he was rated as low as five. His teacher was frantic because, as she tells his mother, his markings bring the whole class average down to such a level as to make it conspicuous. The mother, a very wise woman, told her the solution of it was to drop his paper out and take only the averages of the other pupils. That would bring the average back to approximately normal. But this does not satisfy the average educator, prompted, perhaps, by an over-zealous superintendent of education.

He must expect all things from all children, and this phase of education is one of the impossibilities of present-day life.

In the average school-room there are probably not very many bright children, and those who are bright ought to be set aside in a special class. Those who are half-bright should be given less instruction, and those who are retarded should be given instruction in minor things. But that is not the theory of the educator. He lumps these children together, propounds the same questions to each, and expects all to answer with a reasonable degree of intelligence. The retarded end of the class keeps both the middle section and the upper section below par, and the entire school-room is gauged by this sort of a test; but to the physician and to many lay people it seems unscientific, unwise, and sometimes a ridiculous effort on the part of the sponsors of education. This is only one of the many fads that are to be laid against the crimes of the school board. Some man introduces a new idea because he is an idealist, a theorist more likely; and he introduces it with such glib authority that it is promptly accepted and promptly tried out on the poor, suffering, and ill-constituted children. The idea of the doctor is that most children should be allowed to grow up first physically; that they should be sorted out according to their abilities; that the high-strung, nervously tense children should be handled with special delicacy and not forced beyond their limitations. The parents are practically helpless. They are anxious, of course, to have their children succeed in school regardless of the inconsequential totals of their education. Physicians and others see the ultimate result of this imperfect method. Children who survive at all until adolescence show their ineptitude for forced education; they become slow, more retarded, and are unequal to the strain of social or active life that is placed upon them. As an illustration one may cite the example of the son of Boris Sidis, a celebrated psychologist of Boston. This boy at two was well along in his educational career, and at five to seven he could speak three languages. He was trained to the highest point of so-called educational efficiency, and yet when he grew up to manhood he became a radical, a retarded boy, and was hobnobbing with all of the bad governmental theories of the country. Now he is working at an adding machine—totally unfit for anything else. In all probability he was a defective from the start,



at least precocious, and was a fine specimen to develop into a case of dementia precox. He probably has reached his full limitations and can never approach the standing that his father held; and perhaps it is just as well that he cannot. If he is able to live like the king, and is competent to earn his board and clothes he has gotten about all of life that he will get.

Then, too, there is the system of junior high schools which are springing up over the city. The young and crowded elements that are selected out of the grade schools are thrust into the high schools,—immature, undeveloped, and many of them badly nourished and badly trained. They, in order to keep up the standing of the junior high schools, adopt the tactics of the senior high, and whatever they may absorb in the school-room is lost in the whirl of social and other extraneous engagements. We seem to be fitting our children for a poor lot in life, rather than giving them the riches of a common school education in which the fundamentals are necessary; in which their limitations are recognized, and in which their physical condition shows their unimprovement. It is time to call a halt on this sort of thing, and it ought to be up to the medical man to make some emphatic resolutions and see that the Board of Education receives them. Even if they are thrown into the waste-paper basket, time will show that the medical man rather than the educator is right in his deductions.

#### DR. ALBERT ABRAMS DIES

The newspapers record the death of Dr. Abrams, of San Francisco, on the thirteenth of January. He died from pneumonia, and the presumption is that everything was done for him that could have been done, even to diagnosing his own condition and treating him by the electronic method,—a rather singular inconsistency in the claims which have been made by the Abrams' followers. Still, we suppose that all of us must come to a time when we die of some kind of disease or accident, and it is no more unexpected that Dr. Abrams should die from a preventable disease than it is that a Christian Scientist should pass away from any of the well-known diseases.

This takes out of the United States an almost internationally known man who had developed more theories and has made more definite assertions than almost any other man of his time. He had been the subject of comment, of ridicule,

and of abuse; comment because of his supposedly new methods of demonstrating electronic reactions, ridiculed by most medical men as advancing a theory which had no other foundation than that of faith; and abused by many medical men and many scientists. A further method of ridicule was to transmit to him for diagnosis the blood of a chicken, a lamb, a ram, or a pig when he was making his famous diagnoses by mail, and in most every instance these unsuspected creatures were found to be suffering from syphilis, tuberculosis, cancer, or infection,—his quartet of diseases.

Dr. Abrams failed to appear before a board of scientists in Washington (during the war period) when an investigation was made of his methods, but he sent his head man who nearly swung Congress over to his theory, but stumbled and fell for the clinic that was presented to him and which was shown to be an absurd demonstration. He was also to appear at the trial of one of his co-workers who used the same methods as did Dr. Abrams when she diagnosed the blood of a chicken as that of a human and offered a cure, after the specimen had been sent her through the mail.

The query comes up now as to who will continue this incongruity in medicine, and many think that without Abrams' special influence it will die, as most of these things do,—a rather natural but perhaps abnormal death.

In order to show the contrast between the methods of Abrams and these other fads in medicine, the following clipping was taken from the *American Medical Bulletin*, showing the appreciation of the doctor:

"In the name of thousands."

Minneapolis, December 29.

Following is the clipping enclosed in the letter. Its authorship is attributed to "W. J. C., Detroit, Mich."

"In the name of thousands of unbroken homes in which the midnight hand-to-hand fight with death has been fought and won; in the name of thousands of lives rescued from abnormality and made useful; in the name of unshed tears and forestalled pain and baffled death—I doff my hat today to the doctor.

"May he never have use for his own medicine. May each moment of pain he has saved others, shine in the crown of his life like a bright star. May the children to whom he has saved parents and the parents to whom he has saved children take time to acknowledge the doctor's worth. May his patients pay him his bill. And in the inevitable hour may a certain grim adversary recognize a noble foe and deal gently with the doctor."

## BOOK NOTICES

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month). Volume III, Number 5 (Minneapolis-St. Paul Number, October, 1923), 300 pages with 200 illustrations. Per Clinic year (February, 1923, to December, 1923). Paper \$12.00; Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The October number of the Surgical Clinics has a double basis of attraction in our locality; first because it is a Twin City number; second, because it has a large mass of material which is of great interest and practical value.

One has only to glance at the first article to be impressed with the value of the suggestions offered in this number. Dr. Farr in his sketch "some helpful surgical adjuncts and methods" introduces the use of rubber-ether cement and discusses its advantages in three different types of conditions. Among other ingenious innovations of Farr are the following: the automatic wire spring retractor, the shoe-hook adhesive dressing, and the wound contractor. His vaginal pack and drainage should be emphasized. One would profit greatly if he would also glance over the descriptions of the urethral catheter anchor, the dilatation of the urinary bladder with air, the method for controlling hemorrhage after prostatectomy, and his rubber towel method of emptying a loop of distended intestine without contaminating the operative field.

The clinic of Dr. Lerche on the esophagus with the introduction of his esophageal dilator, is very instructive and full of original material. His discussion of cases is very interesting.

Dr. F. L. Adair takes up in detail the discussion on carcinoma of the uterus and includes five interesting cases. Of similar value and interest is the discussion of Dr. Litzenberg on myomata of the uterus and their relation to pregnancy.

Those interested in urology will find sketches of Dr. Thomas of great interest. Of particular value is his discussion on the emergency method of controlling hemorrhage from the prostatic urethra following the punch operation.

There is a vast amount of material on topics in orthopedic surgery by Geist, Wilcox, Cole, and also Colvin.

The sketch of Dr. Wilcox' "equipment for the standardization of the treatment of fractures" is of great value, particularly to the general surgeon because it contains photographs of the author's table with its complete equipment, and also photographs showing the uses of his splint in various types of fractures. Various kinds of orthopedic conditions are discussed by Cole and Geist in their respective clinics.

The clinic of the late Dr. W. A. Dennis on gall-bladder and pancreas is a monument of the progressive work of the man who had achieved distinction through continuous hard work.

Of interest to the general surgeon are the clinics

of Dr. Schwyzer on various types of interesting surgical conditions.

Plastic and oral surgery also have their places in the clinics of Drs. H. P. Ritchie and J. D. Lewis.

In general this volume is full of interesting discussions, and well portrays the progressive attitude of the surgeons in the Twin Cities.

—M. JOANNIDES, M.D.

ABT'S PEDIATRICS. By 150 specialists. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. In eight octavo volumes totaling 8,000 pages with 1,500 illustrations, and separate Desk Index Volume free. Now ready, Volume I containing 1,240 pages with 284 illustrations; volume II containing 1,025 pages with 180 illustrations. Philadelphia and London: W. B. Saunders Company, 1923. Cloth. \$10.00 per volume.

Abt's eight volume System of Pediatrics, two of which are already on sale, fills a long-felt want in the diagnosis and treatment of diseases of children. The new point of view in diagnosis, which considers the child as a biological unit and not as an isolated physical organism, which includes all of the branches that are necessary in child study, has been adequately and scientifically discussed.

Volume I is devoted to these fundamental branches. There are eleven monographs. They are written by scientists who have devoted themselves to the original investigation of the subjects upon which they write.

Chapter I is on the history of "Pediatrics" by Col. F. H. Garrison than whom there is no greater medical historian. This splendid monograph is as fascinating as a romance and labyrinthine in its completeness. Every course of pediatrics for the undergraduate should include this chapter.

Chapter II is on congenital and acquired predisposition and heredity by C. Little, President of the University of Maine. It is a complete review of the most modern ideas on the subject with special application to the child.

The third chapter is on the anatomy of infants and children by R. E. Scammon, Professor of Anatomy at the University of Minnesota. The writer of this article has done extensive research on this subject for the past ten years. By the use of newer methods of statistical research, he has calculated formulæ and deduced facts mathematically that will add to our permanent knowledge of the anatomy of the child. The drawings in this section are beautifully vivid and accurate.

Chapter IV is devoted to growth and development; and T. Robertson, Professor of Physiology, University of Adelaide, South Australia, has filled his eighty pages with logarithmic formulæ, and statistical calculations such as have never been seen before in any text-book of pediatrics. He attempts to apply these mathematical data to the chemistry of growth and their physical manifestations.

Chapter V is a book of 326 pages on the "Physiology of Metabolism in Infancy and Childhood," by Professor John Murlin, of Rochester University. His monograph is almost a purely scientific review of the best work that has been done, and a discussion of his own investigations especially on basal metabolism in new-borns and infants.



Chapters VI, VII, VIII, IX, X, XI, respectively, are (1) on the "Application of Physical Chemistry to the Physiology of Childhood," by J. F. McClendon, Professor of Physical Chemistry, University of Minnesota; (2) "Hygiene of the Home," by W. R. Ramsey, Associate Professor of Pediatrics, University of Minnesota; (3) "Hygiene of the School Age," by J. E. Young of Chicago; (4) "Hygiene of Infants in General," by W. R. Ramsey, previously mentioned; (5) "Climatotherapy," by F. S. Wakeham, New York City; and, lastly, "Hygiene of the Crippled Children," by H. W. Orr, of Lincoln, Nebraska.

All that the reviewer can do in such a superficial review, is to suggest the vast mine of information on the subjects which are discussed in Volume I, directly and indirectly in the study of the infant and child.

—MAX SEHAM, M.D.

A CLINICAL GUIDE TO BEDSIDE EXAMINATION. By Dr. H. Elias, Dozent and Assistant at the First Medical Clinic of the University of Austria. Dr. N. Jagic, Extraordinary Professor and Chief Physician to the Sofienspital, Vienna, Austria. Dr. A. Luger, Dozent and Assistant at the Second Medical Clinic of the University of Vienna, Austria. Arranged and Translated by Wm. A. Brams, M.D., Chicago, Illinois. Adjunct in Medicine, Michael Reese Hospital, Formerly Lieutenant Commander, Medical Corps, United States Navy. New York: Rebman Company, 1923.

This little volume of less than 150 pages offers one of the most complete, although workable, outlines for a physical examination of the patient that has appeared in recent years. The authors first present a brief outline for the physical examination, which is followed by a more detailed outline for studying special parts of the body. Sections briefly discuss the diagnostic value of the physical findings.

Some chapters have sacrificed clearness to brevity, for example, the section discussing "râles" is not clear and needs explanation.

A good index completes the work.

The reviewer believes the book will be of the greatest value to the student in courses, especially when instruction is guided by a competent instructor.

—E. L. GARDNER, M.D.

## NEWS ITEMS

Dr. L. O. Kron has moved from Culbertson, Montana, to Plaza, N. D.

Dr. J. D. Fuller, formerly of North Dakota, has moved to Brownsville, Wis.

Dr. Hugo Hartig, of Minneapolis, has been re-appointed physician for Hennepin County.

Dr. E. T. F. Richards, of St. Paul, has gone to the West Indies for a vacation of two months.

Dr. A. E. Baldwin, a recent graduate of the University of Minnesota, has located at Brownsdale.

Dr. E. O. Voyer, of Minneapolis, has returned from an extended trip in the East, where he visited a number of the leading hospitals.

A proposal to build a \$60,000 hospital at Ely has been made by a couple of physicians from Kansas. The citizens of Ely favor the project.

Dr. A. S. Hamilton and his associate, Dr. H. B. Hanna, of Minneapolis, have moved into the new Yeates building at the corner of Nicollet Ave. and 9th St.

The United States Veterans' Bureau announces that the Neuropsychiatric Hospital, in course of construction at St. Cloud, will be ready for occupancy on September 2.

Dr. W. H. Aurand, of Minneapolis, who has had his office at Oak St. and Washington Ave. for over twenty years, has moved to the Yeates Building at Nicollet Ave. and 9th St.

Two new units will soon be added to the Elliott Memorial Hospital of the University of Minnesota. The Todd Memorial and the George C. Christian Memorial Cancer Hospitals.

Dr. George D. Rice, of St. Cloud, who was a major in the medical corps in France during the World War, has been appointed medical officer of the Veterans' Hospital under construction in St. Cloud.

St. John's Hospital of Fargo, N. D., elected the following officers of its Advisory Board last week: President, Dr. J. P. Aylen; vice-president, Dr. R. E. Weible; secretary-treasurer, Dr. F. I. Darrow, all of Fargo.

The Lutherans of northeastern Nebraska and the southern part of South Dakota will probably purchase the Campbell Hospital of Norfolk, Nebraska. The hospital cost \$200,000, and is offered to the Lutherans for \$120,000.

Dr. M. C. Elmer, of the Sociological Department of the University of Minnesota, was elected president of the Hennepin County Tuberculosis Association last week, and Dr. W. J. Marclay, of Minneapolis, was elected vice-president.

Dr. Mary Alice Downer, of St. Paul, died last week at the age of 55. Dr. Downer graduated at the Woman's Medical School of Northwestern University with the class of '96. She had practiced in St. Paul for a number of years.

The Clinical Congress of the American College of Surgeons will meet in Omaha on February 18 and 19. A number of distinguished surgeons will make addresses. Dr. John Prentiss Lord, of Omaha, is chairman of the Committee on Publicity.

The Ancker Hospital, of St. Paul, has been selected as a "finishing school" for nurses partially educated in the Indian Schools of the country. Such nurses will receive diplomas from the Hospital's Training School after doing a certain amount of work.

Dr. James Grassick, President of the North Dakota State Medical Association, is leaving for California to spend the remainder of the winter. The banquet which was to be given by the local District Medical Society to the resident has been postponed until his return.

The Sioux Valley Eye and Ear Academy held its annual meeting last week in Sioux City, Iowa. The following officers were elected for 1924: President, Dr. S. A. Keller, Sioux Falls, S. D.; vice-president, Dr. C. H. Fox, Kearney, Neb.; secretary-treasurer, Dr. F. H. Roost, Sioux City, Iowa.

Dean French of the University Medical College of North Dakota and Dr. G. M. Williamson, Secretary of the State Board Medical Examiners of North Dakota, have been appointed by Governor Nestos to represent the medical profession of the state at the annual meeting of the Council on Medical Education at Chicago in March.

Dr. Ruth M. Mahon, graduate of Rush Medical College, who was licensed to practice medicine in North Dakota at the recent examinations has joined the firm of Drs. Wheeler, Campbell, Williamson and Benwell at Grand Forks. Dr. Mahon has recently completed an extensive course of graduate study in pediatrics in eastern hospitals and will confine her practice to that specialty.

A recent survey of the St. Paul public schools made by Dr. E. A. Meyerding, head of the Division of Hygiene, revealed the astonishing fact that 73 per cent of the girls and 54 per cent of the boys in the schools have goiters. In some schools the percentage of cases among girls ran as high as 93 per cent. Practically all are simple cases of goiter and yield readily to treatment.

Minneapolis made a fine showing in its death rate in 1923 as compared with large cities of the country. The three cities lowest in their

general death rate were, in their order, Cleveland, Milwaukee, and Minneapolis; in their typhoid death rate, they were Minneapolis, Boston, and Milwaukee; and in their tuberculosis death rate, they were Milwaukee, Minneapolis, and St. Louis.

The Children's Hospital has been established in St. Paul in a residence building adjoining St. Luke's Hospital, with which it is affiliated. Dr. Walter R. Ramsey is the medical director of the institution, which, no doubt, will soon become a well-endowed children's hospital. Its somewhat unique purpose is to study the problems of infancy as they relate to health and growth. It will be a semicharitable institution.

'The Visiting Nurses' Association of Minneapolis have formulated an admirable and comprehensive plan of work for 1924, as follows: Establishment of an expert orthopedic nursing service; Affiliation with industries which cannot afford an individual plant nurse; Nursing in homes in all communicable disease cases; Nursing at the time of confinement in every home in Minneapolis; Hourly nursing on a more-than-cost basis to those who can afford to pay; Affiliation with every nurses training school in the city, so that every student nurse, while in training, may get some glimpse of public health nursing.

The radiologist technicians of the Northwest have founded an association called the Northwestern Radiological Technicians Society with headquarters in the Twin Cities, where they meet once a month in some x-ray laboratory. The purpose of the Society is to improve the work of its members by interchange of ideas, discussion of problems, and by having papers read before them by authorities. The Society does not, in any way, attempt to fix the rate of remuneration of its members. It is the ambition of the Society to become a branch of the National Society, and therefore members are required to possess the same qualifications as those required by the National Society. Radiological technicians of the Northwest not possessing those qualifications can join the Society and participate in its benefits as associate or member-elect.

#### MARCH PROGRAM OF THE MINNEAPOLIS SURGICAL CLUB

Thursday, March 6

General Hospital

9:00 A. M., to 12 M.

Operative Clinics

Dr. Corbett, Dr. Olson, Dr. Maxeiner, Dr.



Robitshek, Dr. Lynch, Dr. Zierold, and Dr. Moren.

Luncheon at General Hospital 12:30 P. M.

Followed by a Pathological Conference

Dinner at General Hospital 6:30 P. M.

Followed by presentation of cases and a paper by Dr. Angus Cameron, of the University of Minnesota, on "Luetic Bursitis."

#### PHYSICIANS LICENSED TO PRACTICE IN NORTH DAKOTA

The following physicians were licensed at the examination held by the North Dakota State Board of Medical Examiners at Grand Forks January 1 and 4, 1924:

Leonard E. Daly, Baylor University College Medicine (1922) Marmarth, N. D.; Ruth M. Mahon, Rush Medical College (1923) Grand Forks; Carl A. Dragstedt, Rush Medical College (1922) Kenmare; Burton K. Kilbourne, University Kansas Medical College (1904) Fargo; Grant S. Carpenter, Hamline University Medical College (1901) Hurdsfield; Henry J. Leigh, University Illinois Medical College (1891) Lakefield, Minn.

#### Furniture, Instruments and Library

Of the late Dr. J. M. Egan, of Minneapolis, are offered for sale. They can be seen at 1415 Emerson Avenue North, Minneapolis.

#### Office Position Wanted in Minneapolis

By a young lady of good address, who will accept work for a half or a full day and who will give faithful and efficient service. The best of references. Address 52, care of this office.

#### Position as Technician Wanted

By a woman with the best of training as a general laboratory technician. Can give the highest of recommendations, and will go to any part of the Northwest. Address 47, care of this office.

#### Position Wanted

A young lady with four years' experience in taking medical dictation desires a change of location. Group practice or clinic preferred. Has also knowledge of x-ray. Address 49, care of this office.

#### Village Practice for Sale

In Southern Minnesota. Scandinavian preferred. Examiner for many life and casualty insurance companies. Yearly income over \$6,000 in cash. Price, \$500 for practice and equipment. Leaving soon to do special work. Address 51, care of this office.

#### Physician Wanted

Becker, Minn., wants a good live doctor *at once*. Big territory. 18 to 25 miles east, west, and north to any physician. Nearest one now 8 miles away

and across the Mississippi river. Write J. W. Putney, President of Village Council, Becker, Minn.

#### Position Wanted

An expert x-ray technician, with a slight knowledge of routine laboratory work, desires a position, in the Twin Cities or the country, at a moderate salary. Will assist in office work or do any kind of work she can handle. Address 411, care of this office.

#### Position as Dietitian Wanted

A young woman of excellent training in a dietetic institute with a finishing course in a large Twin City Hospital, desires a position as dietitian or assistant. Excellent references. Expects only a moderate salary to begin with. Address 56, care of this office.

#### Half-time Office position Wanted

A young woman of twenty-nine with two and a half years training as a nurse at the Massachusetts General Hospital desires a half-time position in a physician's office in Minneapolis. Has had three months special experience at the M. G. H. Eye and Ear Infirmary. Address 54, care of this office.

#### Physician's Residence for Sale in St. Paul

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

#### Physician's Equipment and Instruments for Sale

Includes Allison table, oak instrument cabinet full of instruments, dressing table, nebulizing outfit with motor, apparatus for application of hot air, therapeutic lamp, high-frequency generators, blood-pressure apparatus, specialist's chair, sterilizer, etc. Price for quick sale \$250. Address 43, care of this office.

#### Physician Wanted

Excellent location in central eastern North Dakota now without a physician. Large territory of good agricultural district including several other towns. Two railroads with good passenger service contribute to practice. May move into vacated physician's office in connection with dentist if desired. Office furniture and x-ray machine here for physician's use. Nothing for sale. Address O. H. Hoffman, D.D.S., Hannaford, N. D.

#### Association with a Physician Wanted

A recent Rush graduate of Norwegian descent, who will complete his senior internship in a large Twin City Charity hospital, July 1, 1924, desires a position with a good future as assistant to a busy practitioner after that date. Personality agreeable; health excellent; and ability at least average. Protestant. Mason. Not afraid of hard work. Prefer position as assistant or an associate, but might also consider a general practice if the opening is favorable. Address 55, care of this office.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 4

FEBRUARY 15, 1924

Per Copy, 10c  
A Year, \$2.00

## DIABETES AND ITS TREATMENT WITH INSULIN\*

BY M. A. SHILLINGTON, M.D.

SAINT PAUL, MINNESOTA

Insulin is here. This long sought for relief from one of the most dreaded of diseases has finally been developed. This development is a story the recounting of which deals with thirty-two years of painstaking effort, of careful recording of results, of profiting by the experience of others, and finally of reaching a goal through the willing co-operation of scientists and the mutual sharing of glory in the final achievement.

### HISTORICAL

In the second or third century, A. D., Aretæus, a Greek, gave a description of the disease diabetes which is true to-day, practically without change. In 1674 Thomas Willis described the sweetness of the urine of these patients, and about one hundred years later another Englishman showed this sweetness to be due to glucose. In 1889 the first work done to determine the etiology of diabetes was carried out. At that time Minkowski, a Russian, experimented with depancreatized dogs. He learned, first, that the blood sugar of these animals is increased; secondly, that glucose appeared in the urine, and, thirdly, that the glycogen content of the liver was lessened. This was a condition which was identical to that found in diabetic patients. Minkowski drew the conclusion that some element of the pancreas was at fault in this disease.

A short time after that some one discovered that tablets made from thyroid tissue were very beneficial in cases of myxedema. This fact,

coupled with the above, gave a clue and started a number of investigators to work upon solving the diabetic problem by a gland product. Every year since then has seen some contribution to the literature of this subject. The principal workers until 1912 were among the French, Italians, and Germans. Their failures to produce a suitable extract were due to impurities. Of these trypsin, bacteria, and foreign proteins were the most objectionable. The dangers from the injection of these extracts subcutaneously arose from a digestion of the tissues locally with a resulting slough, a septicemia, and marked systemic reactions because of the foreign proteins.

The first patent for a pancreatic extract was granted to a German in 1912. His product, because of impurities, was very unsatisfactory. From 1912 to 1916 Dr. John Murlin, of Rochester, New York, was making great strides toward the purification of these extracts. Previous to the World War he was using an extract on human beings which was fairly satisfactory. Dr. Murlin entered the ranks of those who were engaged in the great war and was prevented from further work along this line.

In November, 1920, Dr. Banting formulated an hypothesis, which has finally culminated in the present extract that is being used. Dr. Banting knew that if the pancreatic duct was tied there would be a resulting atrophy from disuse of the acini of the pancreatic gland without any disturbance of the islands of Langerhans. This would leave the internal secreting portion of the gland intact, and it should be possible to make

\*Presented at the forty-second annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.



an extract which would contain this secretion in quantities enough to be a help. Consequently in May, 1921, under the direction of Dr. J. J. Macleod, Dr. F. G. Banting and his associates (Dr. J. B. Collip, Mr. C. H. Best, and Mr. E. C. Noble) started to work at the University at Toronto. They developed an extract which worked very well on animals. In January, 1922, the first extract was administered to a human being.

#### PREPARATION OF THE EXTRACT

The extract, as used at present, is prepared in a much different way from that which was prepared in 1921. The fresh glands are now used. This simplified matters a great deal. The gland is frozen, minced up, and extracted with 95 per cent alcohol. This extract is further precipitated by added alcohol and by an ammonium sulphate solution. It is evaporated and then extracted with ether to remove any lipoids present; eighty per cent alcohol is now added. The mixture is centrifuged, and four layers result. The heaviest, a layer of salt crystals, above it an aqueous solution of salt, above this a flocculent layer of protein, and on top a clear layer of alcohol containing the active principle. This top layer is now purified by adding it to absolute alcohol, when the active principle precipitates out. It is redissolved in water, filtered to sterilize, and then is ready for use. During this process it is necessary to keep the hydrogenion concentration at a definite level. The Eli Lilly Company is the American manufacturer of Insulin, which is termed *Iletin* by them. This is supplied in ampoules containing fifty to a hundred units, depending on the concentration. I may also add that chemists are very actively engaged in determining the analysis of the active principle of the gland so that it can be made synthetically.

This extract contains a minimum amount of protein, is practically salt free, is lypoid free, is free from alcohol constituents, and can be passed through a Berkfield filter and sterilized.

After securing the extract a great problem still remains, that of standardization and dosage. This is carried out on animals, and up to date is still a very expensive process because of the number of animals required. A unit of Insulin has been taken as that amount which will reduce the blood sugar per kilogram of a rabbit to .045. It so happens that one unit of Insulin is capable of bringing about the consumption of about two grams of glucose. It is on this basis of units that the dosage of Insulin is ordered.

A patient requires just that amount of Insulin which will help him to oxidize enough glucose to maintain weight and strength when engaged at his occupation.

#### PRESENT CONCEPTION OF DIABETES

The state of the diabetic as far as his individual life is concerned is one of worry and apprehension. He knows he has a condition which is slowly sapping his strength. The average life of the diabetic individual under a careful regime is about five and a third years. This is a formidable figure which we cannot ignore. It also presents an economic problem to the community. This manifests itself more particularly when it is the wage earner of the family who is the patient. It leaves open a partly unsupported home, uneducated children, and the need of outside support. If there is any condition where an economic good can be done it certainly is in the case of a diabetic. It is estimated that 1 per cent of our population is potentially diabetic.

The chemical situation in the diabetic patient can be summed up in the following five facts:

First, an inability to oxidize glucose.

Second, a lowered respiratory quotient.

Third, the excretion of part of the glucose metabolized from the proteins.

Fourth, an excess heat production, due to the specific dynamic actions of the increased protein metabolism.

Fifth, an acidosis from the incomplete oxidation of fats.

A possible sixth factor is the amino-acids of the blood, but this has not been sufficiently worked out to make any definite statements.

Because of this pathology there are certain tangible facts that we can determine in the laboratory in the case of a diabetic patient which enable us to study the seriousness of his disease:

First of these is, an increase of glucose in the blood.

Second, as the blood glucose rises to about 0.16, glucose appears in the urine. This varies slightly with the patient's threshold.

Third, the incomplete oxidation of fat causes acetone and diacetic acid to appear in the urine.

Fourth, the excessive protein metabolism causes increase of nitrogen in the urine.

Fifth, a lowering of the respiratory quotient.

The incomplete oxidation of fats was probably one of the greatest blows to the patient. The normal body uses both fat and carbohydrates for the production of heat and energy.

The ratio of energy furnished by fats and carbohydrates is as nine to four, so it is easy to see from this how valuable fats are. When the oxidation of fats is limited there are fewer calories produced, and the by-products when incompletely oxidized are very dangerous to the body. The amount of fat the body can oxidize depends in definite ratio on the amount of carbohydrate it can oxidize. One molecule of carbohydrate is able to take care of two molecules of fatty acids. A homely illustration of this is as follows: Picture for yourselves the burning carbohydrates as the flame of a gas jet. In the heat of this flame are the fats which, when brought to the kindling temperature, are ignited and burned. It is when this carbohydrate oxidation burns low that less fats are oxidized or the molecules are only partially oxidized. A partially oxidized fat has as its by-products diacetic acid and acetone. The accumulation of these ketone bodies in the system is what produces the acidosis and coma in the diabetic patients.

The excessive heat production due to the specific dynamic action of the increased protein metabolism is also very important to the diabetic. When the diabetic cannot oxidize sufficient carbohydrate to maintain life there will be a breaking down of body proteins. This in turn increases the basal metabolic rate of the patient, and there is even a greater demand for the heat and energy of the carbohydrate and fat metabolism.

The most important measure we have, in the case of a diabetic, is the respiratory quotient. Under ideal conditions of complete carbohydrate oxidation with the metabolism of no other food elements the respiratory quotient would be 1. The normal respiratory quotient taken from the average individual where fats and proteins are metabolized in addition is 0.82. In the diabetic case where the ability to oxidize carbohydrates falls off gradually the respiratory quotient falls off likewise. The final test in any method of treatment of diabetes is how near does the respiratory quotient come to normal, for it is increased oxidation of carbohydrates that we try to secure.

#### TREATMENT OF THE DIABETIC WITH INSULIN

In order to treat the diabetic patient it is first necessary to determine his actual power of oxidizing glucose. This is done by placing patient in a bed at rest on what can be called his minimum diet.

From values worked out by Dubois and from tables prepared by Drs. W. M. Boothby, R. B. Sandiford, and R. M. Wilder,<sup>1</sup> this minimum diet is calculated with great accuracy and speed. It is necessary to know the patient's weight, height, age, and sex. From these factors it is readily possible to calculate the patient's needed calories. Knowing from experience the daily normal output of nitrogen in a resting person it is found the patient must have about two-thirds of a gram of protein per kilogram of body weight per day in order to protect the body proteins. Knowing the patient's protein and caloric needs it is easily possible to determine, by Doctor Wilder's chart, just how much fat and carbohydrate will be needed and in what proportion to prevent the formation of ketone bodies.

After the patient is on this basal diet for three days, if he is not sugar free, he is fasted for one day. The fourth day he will be put on half basal diet, and the fifth day on full basal diet. The patient will be kept on this diet for three or four days, if he is not sugar free. If he is sugar free the fats and carbohydrates are increased 20 per cent each day until such time as the patient shows sugar in his urine. During all of this time the urine is collected, and the glucose content is measured. The difference between the glucose in the urine and that in the food determines the amount the patient can oxidize. After this is determined the protein content of the food is increased to about 1 gram per kilo, and the calories are increased to 3,000, or thereabouts, depending upon the amount of work the patient has to do. The difference between the glucose in this new diet and the glucose that has to be taken care of by the Insulin, allowing two units of Insulin for every gram of glucose the dosage can be very readily calculated.

The final question is, What will Insulin do for the patient? In general, Insulin will increase the patient's power to store glycogen and to oxidize glucose. As a result of this we have:

First, a lowering of the blood glucose.

Second, the disappearance of glucose from the urine.

Third, the oxidation of acetone and diacetic acid in the body.

Fourth, a rise in the respiratory quotient.

Fifth, a lowering of the nitrogenous waste.

Insulin will not replace a diatetic regime; in fact, an accurate diet is even more important when Insulin is being used.



Insulin is specific in cases of coma. The patient is comatose because of the accumulation of ketone bodies in the tissues. To these cases is administered a dose of Insulin, and they are given sufficient glucose to buffer the Insulin given. In five hours most of the acetone and diacetic acid should be oxidized and the patient at least partly recovered.

The administration of Insulin is attended by some danger. When a certain amount of Insulin is given there is going to be a definite amount of glucose oxidized. It is very essential that this glucose be supplied by the food. If it is not, the patient's blood sugar will be lowered to a point below normal, and some grave symptoms will ensue: the pulse rate will be increased; the patient may be either pale or flushed; and there will be marked sense of restlessness and a general appearance of apprehension on the part of the patient. As the blood sugar is lowered still farther the patient passes into a convulsive state, and on still farther lowering of the blood sugar he will pass into coma and die. At any stage of this process the administration of glucose or adrenalin will cause relief. The glucose will raise the blood sugar by replacement, and the adrenalin will raise the blood sugar by the liberation of glycogen from the liver. Too much care cannot be exercised in the determining of the proper amount of food to be given with Insulin. In order to do this a trained dietitian is indispensable, as is also an accurately functioning laboratory where glucose and nitrogen determinations may be carried out. The patients should be given just enough glucose in their diets so that they will show a trace in the urine once daily. This acts as a buffer against any possible over-dose of Insulin. The Insulin is administered usually at 6 A. M., at a time when the maximum absorption of glucose from the diet will coincide with the maximum activity of the Insulin. If any reaction occurs it will be in the day-time, and the nurses are on the alert to combat this.

While in the hospital the patients are given a diabetic manual, with instructions in preparing their diets, and are taught to administer their own Insulin hypodermically.

#### CONCLUSION

First. The outlook for the diabetic patient is very good since the development of a pancreatic extract.

Second. Diabetic coma can be successfully treated by Insulin.

Third. The use of Insulin will not replace a dietetic regime.

Fourth. A high fat, low protein diet will better care for the needs of the diabetic patient than any other combination.

Fifth. Insulin is dangerous when not properly used.

#### BIBLIOGRAPHY

1. Wilder, R. M.: Optimal Food Mixtures for Diabetic Patients. *Jour. of the A. M. A.*, 78:1878 (June 17), 1922.

#### DISCUSSION

DR. E. C. HAAGENSEN (Grand Forks): I wish to ask one question: If Insulin is used over a long period will it eventually raise the carbohydrate tolerance of the patient?

DR. FRANK CORBETT (Minneapolis, Minn.) I, too, would like to ask one question: In a case where they have so far reduced the blood sugar that the patient goes into coma what recourse is there—what can be done to bring the patient out?

DR. THOMAS MULLIGAN (Grand Forks): I have only used Insulin on one patient, and my only object in getting up is to clear the minds of some of you of the misapprehension you have about using Insulin. On looking the matter up I got the impression that if you can keep the patient sugar free, or nearly sugar free, and the patient is in a fairly good state of general nutrition and you are able to control the amount of sugar without Insulin it is not indicated in that case. Insulin is indicated in the cases where you are not able to control the amount of sugar in the urine, and also in the ones that are bordering on coma, as Dr. Shillington said.

DR. SHILLINGTON (closing): Replying to the first question: So far as we know Insulin has not been used for a period of time long enough to determine this question of improved carbohydrate tolerance. The first dose was given in human diabetes in January, 1922, about sixteen months ago. No one has dared hope that it will ever help the pancreatic gland to regenerate. Part of the islands of the gland are usually destroyed so effectively that they will probably never function again.

As to Dr. Corbett's question: That is very easily handled. If the patient is able to swallow you can give 30 grams of glucose by mouth in the form of orange juice, and he will begin to recover very rapidly. If the patient cannot swallow because of extreme hypoglycemia, glucose can be given intravenously in solution. Another method is to give adrenalin, which will liberate some glycogen from the liver. This will restore the patient's equilibrium somewhat, and then you can administer more glucose when he is able to swallow again.

I agree with Dr. Mulligan about the indications for Insulin. If the patient is able to oxidize carbohydrates enough to furnish sufficient calories to consume his fats and to protect his body proteins he does not need Insulin. If a patient can do that I do not advise Insulin for he can get along without it. It is a question of keeping the nitrogen in equilibrium and maintaining the weight of the patient. If he can do this we do not need Insulin. Some patients when they leave the hospital and go home do not want to be bothered with taking Insulin if it is not necessary.

## RETROSPECT AND INTROSPECT: PRESIDENTIAL ADDRESS\*

BY FRED L. ADAIR, M.D.

Associate Professor of Obstetrics and Gynecology, University of Minnesota

MINNEAPOLIS, MINNESOTA

There is a provision in Article XII of the By-Laws of the Hennepin County Medical Society that "it shall be the duty of the President to preside at all meetings of the Society, to appoint all committees not otherwise provided for," but I wish particularly to call attention to the last clause of this sentence, which is to the effect that the President is required to "deliver an address on some professional or scientific subject at the Annual Meeting of the Society."

Having, in the past, listened to a number of presidential addresses, it occurred to me that it might be of interest not only to review the addresses which I had heard, but also to read the other presidential addresses to which it had not been my pleasure to listen. Upon investigation I found that the Society had no file of the presidential addresses. It seemed to me it might be of value and of considerable interest to collect these addresses in order to have them in the archives of the Society. Our first step was to attempt to secure reprints of the addresses of all the past presidents. This proved, however, to be extremely difficult, and ultimately was deemed to be impossible. It was then decided to make typewritten copies of all of the presidential addresses. Here, again we met with obstacles, and we now fear that, unfortunately, some of these addresses seem to be irretrievably lost. It is my intention to have these uniformly typed addresses bound in two volumes, together with the photographs of the presidents, and to present these to the Society, so that they may remain permanently in the archives of this organization. Unfortunately, however, we have been unable to fully complete this work, so that I am not able at this time to give these volumes to the Society. We shall be able, however, to finish this task within a relatively short time, when these volumes will be formally presented to the Society.

As many of you probably know, this Society was founded as the Union Medical Society in 1855, the first president being Dr. A. E. Ames, who continued in office continuously until his death in 1874, approximately nineteen years.

During this incumbency he was relieved at two intervals, first by the vice-president, Dr. N. B. Hill, in 1868, and in 1874 by Dr. Charles Simpson, also vice-president. In 1875 Dr. C. G. Goodrich was made president, since which time no one has been elected to succeed himself in office with the exception of Dr. J. Harlan Stuart, who served as president in 1890 to 1891 and again for a period of one year from 1891 to 1892. Of those who served as president prior to 1888 all are now dead. Of those who have served as president since this date (1888) we can mention those whom we no longer have with us in this life. The names of Drs. J. Harlan Stuart, J. W. McDonald, J. C. Cockburn, C. H. Hunter, F. C. Todd, J. E. Moore, and F. A. Knights are well known to most of us. Out of the thirty-four who have occupied this office since 1888, seven have died, most of them within the past five years.

So far as I can find from the records of the Society the first presidential address was delivered on July 5, 1892, by Dr. J. Harlan Stuart, upon the completion of two years service as president of the Hennepin County Medical Society. It was during this period of time that the records of the Society were either lost or destroyed. The manner in which these records disappeared has never been exactly known. Dr. Stuart in his address states that the loss of its book of records is irreparable. From the standpoint of the history of the Society it is, indeed, a loss which cannot be retrieved. In one instance, at least, we are not certain who was the actual president of the Society, that is, during the year of 1885 to 1886.

It has been of interest to me to read these presidential addresses. Dr. Stuart states that the roster of the Society included one hundred and seventeen names, of whom forty-seven were taken into membership during his two years of service. He calls attention to the fact that at least seventeen of these members had manifested no interest in the welfare of the Society, and that sixty members, about fifty per cent, were actively interested in the doings of the Society. Dr. Stuart also mentions the attendance at the meetings, which, he states, ranged from fifteen to

\*Presented before the Hennepin County Medical Society, Minneapolis, Minnesota, January 7, 1924.



forty-five. This makes one wonder why, with four times the membership, our attendance at meetings is not correspondingly larger.

It is unfortunate that at the present time we do not have a similar proportion of members actively interested in the welfare of the Society. The present attendance at our meetings does not indicate that a correspondingly large percentage of our membership of four hundred and ninety-one is actively interested in the Society; otherwise our meetings would be much more largely attended. Such a percentage of active members would soon crowd us out of our present quarters, inasmuch as we could not adequately care for an attendance of two hundred or more at our meetings. Judging by the present attendance, one could hardly be justified in stating that over 10 or 15 per cent of our total membership was actively, vitally, and enthusiastically interested in the welfare of the Society.

It may be of interest to enumerate some of the titles of the papers which were presented at this time (1890-1892), over thirty years ago. This would give us an index of what the medical profession was thinking about at that time. Some of these titles are as follows: "Infectious Epidemics," "Preventive Measures in Small Pox," "Diphtheria," "Scarlatina," "Extra-uterine Pregnancy," "Uterine Displacements," "Endometritis," "A Brief Review of the Cancer Problem," "Sarcomata," "Exsected Knee," "Use and Abuse of the Drainage Tube in Surgery," "Colles' Fracture," "Practical Points in the Surgery of the Kidneys," "Appendicitis," "Nervous Diseases," "Infantile Eczema," "Infantile Feeding," "Hepatic Abscess," "Treatment of Valvular Disease of the Heart," and also a lecture on "Cerebral Localization with Demonstration" by Dr. George A. Hendricks, to whose anatomical lectures many of us have had the pleasure of listening.

One very interesting part of Dr. Stuart's address which is somewhat analogous to the discussion at the present time regarding our relation to the lay press and public was of very great interest to me. After speaking of the value of the papers and discussions which took place in the Society meetings he says:

"I cannot forbear in this connection to express my regret that these discussions have been altogether lost, believing as I do that much of what has been said, together with the papers read, has been worthy of publication in some appropriate medical journal.

"I know that some are disposed to argue against the publication of any papers read before this Society, but I think we should take a broader view of the matter.

"We owe it to the profession to contribute our share to the common fund of knowledge and experience. We are debtors by reason of our superior opportunities, situated as we are in a medical center with no mean facilities; and also because we draw from the contributions of others to strengthen our own resources.

"It is the privilege of all, having accomplished worthy things by toil and patience, to make manifest their deeds and to let their lights shine. It is true that many worthy physicians have hid their lights as it were 'under a bushel,' and their valuable experience has been lost to the world. If any one by a worthy article published in a journal thereby reaps a richer harvest, it is the result of a natural love by which we all hope to win."

Some of those who have been members of the Society longer than I will probably remember the discussion and attitude of mind which led to these remarks of Dr. Stuart. They struck me as being rather apropos of the present attitude and relation of the medical profession to the lay press and the laity.

I should like also to call attention to the fact that it was at this time that our present library was founded by the individual contributions of money for purchase of medical journals which were housed in the Public Library building. The Hennepin County Medical Society appropriated eighty dollars for the purchase of periodicals. The city also purchased from their funds some medical journals and books for this library.

Another interesting part of this address concerns a proposition which we have tried to make a live one at the present time. He states that "in some of the large cities the profession have invested large sums in buildings and grounds of their own and have many conveniences exclusively of their own. This may be possible in the city of Minneapolis in the future when some of the faculty now growing rich shall bequeath for that purpose ample sums of money."

It is also interesting to know that the question of the relationship between the general practitioner and the specialist was up for discussion. He remarked that "there seems to exist in the minds of some an apprehension that the class known as the general practitioner, like the dodo, is destined ere long to become extinct, and that

the service he has so long performed will be parceled out among specialties that have of late years become so numerous; and, if he survive at all, it will be to have the care of a limited number of the common ailments and in addition to this to serve as a sort of advisory member to those seeking the services of the specialist." I think it may be interesting to quote a few of his remarks regarding the general practitioner and the specialist:

"The general practitioner is also a progressive being. \* \* \* He has at the beginning of his career an even start in the race for success with him who limits later his work to a specialty. What is to hinder him, if he be not overcome and borne down by the power of inertia, which too often invades our ranks, from appropriating the knowledge gained by the labors of others? He is more or less versatile according to his assiduity and industry; and he unquestionably possesses a right to whatever part of the field of work he is competent to occupy. \* \* \* He, like any other, has no right to assume the management of a case beyond his skill and equipment. Surgery always has been regarded as a sort of grand division of medicine, and its practice for obvious reasons has been and in a measure will remain in the hands of surgeons; and yet under the new regime much of what might be called common surgery is being well done by the general practitioner. \* \* \* Standing as he does nearest the family and the sufferer, he will continue, as in the past, unless he voluntarily relinquish his place, to assume the care and direct the treatment of most of the ailments of humanity. \* \* \* The ideal specialist is he who, after a more or less protracted general practice shall, according to his natural or acquired fitness, select his special line of work."

Dr. J. Harlan Stuart was born in 1836, and came to Minneapolis in 1882, where he died on August 31, 1920 at the ripe age of 84.

At this same period in the history of the Society the custom of having the vice-presidential address was also inaugurated. This address was scheduled for the semi-annual meeting of the Society. The first one of these addresses was given by Dr. G. Willis Bass at the semi-annual meeting December 5, 1892, his subject being the "Doctor's Income." The presentation of this subject was very interesting, and indicates that the matter of the doctor's income was then as live and vital as it is at the present day. The custom of having addresses by the vice-president seems never to have become well established.

Apparently, no addresses were given between the years of 1892 and 1897. Dr. C. A. McCollum held this office and gave a vice-presidential address in 1897. Dr. Rollin E. Cutts, whom some of us remember, died prematurely in March, 1902, at the age of thirty-seven. He gave a vice-presidential address in 1898. Dr. Knute Hoegh gave another one of these addresses the following year. A year later Dr. C. A. Erdmann presented another vice-presidential address to be followed by one the following year by Dr. Frank C. Todd, whom most of us knew. His address is one of the few dealing with preventive medicine and public health, and it was upon the subject of the examination of the eyes and ears of the school child. This was the last of the vice-presidential addresses except one given by Dr. George D. Haggard in 1924, which could hardly be considered a vice-presidential address, inasmuch as it was given in lieu of the presidential address.

Many interesting topics have been considered in these various presidential addresses. In 1893 Dr. William Asbury Hall, whose courtly personality some of us remember, and who died at the age of sixty-six in April, 1919, presented an address upon the subject of "Medical Education." He stressed the importance of making an accurately complete diagnosis and the utilization of some of the more common objective methods of physical examination, though not belittling some of the more scientific methods.

That the so-called cults were a problem thirty years ago is shown by the following sentences from his address: "The regular profession of medicine believes fully in the '*vis medicatrix naturæ*;' that the tendency of most diseased conditions is towards recovery. This is proven beyond question from the fact that the unscientific, so-called 'systems of medicine' thrive, and, in spite of bad treatment and no treatment, the vast majority of cases of illness recover."

Another piece of advice which is equally good to-day is that we should not be too ready to give up therapeutic agents of proved value. He recognized another fact which we are also in danger of forgetting to-day. I cannot state this better than he did at that time: "The medical society is the school for the practitioner. Those who neglect their opportunities by keeping away from its meetings or not taking part in its work, are not making the most of their opportunities for their own advancement and success. They who contribute most of valuable material to society proceedings are contributing most to their own professional honor."



It is naturally much less embarrassing to quote from addresses of those who are no longer with us. I cannot refrain, however, from mentioning the address of one of our loyal and active members, which is the only one in the whole series of addresses which deals with a very vital subject, one which is vital to both the community and the medical profession, namely, "The Doctor in Politics." The author very properly distinguished between the doctor in politics and the political doctor, and urged upon the Society the importance of its taking a more active and aggressive interest in governmental activities concerning which medical men could and should be recognized as having more or less authoritative information. So far as can be seen at the present time the medical society has not profited greatly by this advice of Dr. W. A. Jones, given nearly thirty years ago.

Dr. J. Warren Little presented the next address, and, as you all know, he is numbered among our honored members who no longer respond to roll call. He died in 1920 at the age of sixty-one. The medical profession and the community were deprived of his able services at a time when his ability and ripe experience should have counted for much during a considerable number of years.

Another interesting address delivered in 1898 was upon the subject of "Typhoid Fever." This was given by Dr. J. C. Cockburn, who died in this city in February, 1911. It is very interesting to recall that, in the space of twenty-five years, the disease which served as the basis of his paper has been practically eliminated from our category of diseases, and that now in this community typhoid fever is something of a rarity instead of being a commonplace and everyday disease. Some of us may remember when the proposed filtration plant was under discussion in this community, endorsement of this Society was sought. There was much diversity of opinion and some rather acrimonious discussion, and the point I wish particularly to make is that the Society failed to assume active leadership in putting across a community health plan for a pure water supply. This project was put across without the active leadership and co-operation of the Hennepin County Medical Society.

I wish to call attention a little more in detail to the paper of Dr. Rollin E. Cutts dealing with "The Second Stage of Labor and Some Injuries to the Parturient Canal." The main point in his paper to which I wish to call attention is in the sentence that follows: "But a short time

ago while speaking with one of the younger members of our Society about obstetrics and in particular about the small fee received for that work here, he remarked that was all it was worth as ninety-nine cases out of one hundred would deliver themselves in time if left alone and no skill was necessary in these cases." Dr. Cutts deplored this attitude of mind, and I should like to remark at this time that, if the medical profession had been alive to its responsibilities in regard to maternity care, the Shepard-Towner Bill would not only not have been necessary, but it would never have even been considered. This, then, may be cited as another instance where the medical profession may be considered to have failed in meeting its obligations to the community. I am not referring particularly to the local profession, but to the profession of this country as a whole.

Dr. L. A. Nippert presented a paper on "Diphtheria" at about the time when the use of antitoxin was being inaugurated. At this time, less than twenty-five years later, we are engaged in the use of preventive measures against diphtheria in developing immunity by the use of toxin antitoxin.

One wonders if the medical societies and the medical profession are as active in pushing preventive measures in an attempt to eliminate disease as they should be. Are we educating and actively encouraging a more wide-spread use of this method of preventing diphtheria, and have we failed in the campaign for the universal use of vaccination against smallpox? One does not gain the impression that the medical society and the medical profession are nearly as active in promoting these preventive measures as the antivivisectionists, antivaccinationists, together with other antis, are in their propaganda.

In 1900 Dr. H. B. Sweetser, in some introductory remarks to a scientific paper, called attention to the large amount of detail necessary in the conduct of the affairs of the Society, and emphasized the necessity of better organization. It was at this time that the Public Library rescinded its action regarding the use by the Hennepin County Medical Society of rooms in the Public Library. The Society at that time undertook to develop its own library in some rooms of its own. According to my recollection the first independent Society and Library rooms of this organization were on the top floor of the Andrus Building. About seven years later, due to the generosity of Mr. L. S. Donaldson, our present quarters were obtained. These have

been occupied approximately fifteen years. As you all doubtless know, the Donaldson Company is now projecting an enormous commercial enterprise, which will ultimately be housed in a building occupying this entire block. It behooves the Society, therefore, to be seriously considering its next move, which, undoubtedly, it will be forced to make within the next few years. A short time, six years, to be exact, will bring around the seventy-fifth anniversary of the founding of this Society. Would it not be fitting, if, during this time, we could accumulate sufficient funds to establish the Society in its own permanent home? I was a relatively new member and a new-comer to the city in 1906, when the Society passed through its fiftieth anniversary, but I do not remember that much ado was made regarding this semicentennial. Let us not be so apathetic as to pass through the seventy-fifth anniversary without a little more emphasis on the importance of this organization, for it is important not only to us but to the community as well. Let us plan to place the Hennepin County Medical Society on a permanent and secure material foundation on June 20, 1930.

Twenty years ago Dr. J. W. Bell called attention to the tremendous mortality from tuberculosis. He ascribed this high mortality to the failure to make an early diagnosis, due in part to "procrastination on the part of patients in seeking medical advice and neglect on the part of medical men to detect the early manifestations of the disease." Has this Society during this period of twenty years taken active leadership in this campaign against tuberculosis and in accomplishing the two desiderata pointed out by Dr. Bell twenty years ago? To my mind this is another failure of the medical profession to meet its obligations to the community and to themselves. During the past year arrangements have been made for the president of this Society to sit as an ex-officio member on the Executive Committee of the Hennepin County Tuberculosis Association. Let us not again fail as a Society to sustain our active interest in this work.

The result has been that these public health and welfare activities have been taken over by the laity and are now carried on through the instrumentality of individual medical men. This Society did not seize its opportunities, but the past cannot be undone. The important point for us to consider is whether or not and how the medical profession and this Society can gain

the prestige in health matters which it has forfeited through its inability to see and seize opportunities which presented themselves. The vital and all-important problem for us to consider now is whether or not we are allowing similar opportunities to slip away from us at the present time.

There were many worthy addresses, but it would require too much time to consider them all extensively. Many are too recent to give us much perspective. I should like, however, to refer briefly to one by Dr. C. H. Hunter, now deceased, on "Some Functions of the Hennepin County Medical Society." In this address he spoke of the importance of hospital development, and I wonder whether or not the medical profession was as active and energetic in this development of good hospitals in this community as it might have been. One could be inclined to think that perhaps medical men have looked more to hospitals from the standpoint of selfish interests rather than from the viewpoint of the profession and the community as a whole. Have not hospital development and organization been forced upon us by the laity and by outside forces rather than by the activities of the local profession? Is it not, in a way, unfortunate that it has been necessary for outside agencies to virtually force upon us hospital development and improvement which could have easily been brought about by ourselves among ourselves? This remark applies not solely to our own community, but to many other communities as well. The only point I wish to make is that had the medical profession been alive and awake to its opportunities, these outside agencies, if they had appeared at all, would have come to commend instead of to condemn.

Another paper of importance was that by Dr. F. C. Todd on "Fourth of July Casualties" presented in 1907. He called attention to the large number of avoidable casualties which occur incidental to Fourth of July celebrations, and also to an act of the City Council passed some twenty years before which had not been enforced. I wonder how active the Society was during this twenty years and has been since in securing enforcement of the ordinance to prevent injury and loss of life.

During that year a surplus of about two-hundred and forty dollars, derived from the Entertainment Committee, was applied to the building fund.

Dr. J. E. Moore, for many years active in surgical practice in this city, died in November,



1918. His address, in 1908, was concerned, in part at least, with medical inspection of school children. This same work is now under control of the School Board with a director of hygiene, and has recently been under discussion by the Society. One might legitimately inquire whether or not the Society has sustained its interest by keeping in contact with the progress of this work. We have now secured, during the past year, through the kindness of Dr. Harrington and the courtesy of the School Board, a school committee which serves as a bridge between the Medical Society and the School Board. If there is anything to criticize in the present conduct of the school inspection we ourselves are not free from criticism for taking no more active interest in the development of this important project than we have. Let us see that the draw-bridge between the profession and the school is kept open so that we may not plunge into the moat of antagonism to legitimate public health work.

Dr. R. E. Farr, in 1916, suggested and reiterated many plans for the development of the Society, many of which had not and have not been systematically developed. This emphasizes the idea that the Society should have certain definite and permanent policies which it continually strives to accomplish.

In 1917 Dr. J. G. Cross delivered his presidential address on the "Relationship of Medical Men to Present-Day Social Changes" in which he stressed the importance of the study of social changes by medical men. These changes vitally affect the health and welfare of members of society, and are of vital concern, not only to the medical profession, but to the public as well. I wonder now many members of our Society have been led to study and inquire into these fundamental social changes which are of vital importance for the future relationship of the medical profession to the public.

In 1919 Dr. Litzenberg presented a paper dealing with a similar topic, considering "Socialism and the Practice of Medicine." Is the medical profession making a sincere effort to understand these various problems and trying to pilot public opinion into safe channels? Our modern social system is tremendously complicated, and individual medical practice is being encroached upon from nearly every angle. Medical men who are interested in the welfare of the profession should study these problems in a broad way and attempt to guide and direct not only the opinions of the medical profession, but those of the laity as well.

For the most part one gains the impression that medical men are standing on the curb while the procession moves on.

My predecessor, Dr. A. E. Benjamin, last year gave an address on the "Objects and Opportunities of the Hennepin County Medical Society." This address is too recent and fresh in the mind of all of you to need any comment. I should like, however, to point out that there have been in the past, and are at the present time, opportunities which the medical profession has failed to grasp, that many of the difficulties with which we are now confronted are due to our failure to grasp and handle situations as they develop.

Dr. Corbett, in January, 1921, gave a presidential address entitled "Medical Vision." There are numerous instances in the history of medicine where individual medical men have shown vision, but there are few instances where the profession as a whole has been willing to accept the leadership of men with vision.

Dr. George Douglas Head, in 1922, addressed the Society upon the "Traditions and Ideals of our Profession," in which he stressed the fact that medicine is a profession and not a business, and emphasized the fact that service is the keynote of medical practice. Individual medical men and the profession have practically never failed in their idea of service to individuals, but has not the medical profession failed to grasp the importance or significance of public health movements? Has it not further failed to grasp the importance of preventive medicine, even as applied to the individual? The average medical man is not interested in rendering services to the individual who is not sick or who is apparently afflicted with some trivial ailment which might perhaps be the forerunner of a serious affliction. The point I wish to make is that medical men have not failed in rendering services in what might be called the emergencies of life, but have they grasped the importance and significance of guiding individuals through life and away from the pitfalls of disease? Have we been alert in helping people to prevent disease and to detect these conditions in their incipency?

The consideration of presidential addresses would not be complete without mentioning a very important contribution of Dr. A. S. Hamilton in 1918. This address was the result of an enormous amount of work, and it gives us the most complete account available of the development of medicine and the medical profession in Minneapolis.

Unfortunately for the completion of the series of presidential addresses there are eight lacking. Of these we have the titles of only two, that of Dr. J. D. Simpson, in 1909, on "Teamwork in Medicine," and that of Dr. T. F. Quinby, in 1911, on the "Prima Via and Its Vagaries." Neither one of these addresses appears to have been published, and the original manuscripts seem to have been lost. We have neither the title nor the subject matter of the addresses of Drs. J. W. McDonald, C. G. Weston, D. O. Thomas, F. A. Knights, C. H. Bradley, and C. A. McCollum. If any one of the members knows the title or how the manuscript of any of these addresses can be obtained we shall be pleased to have the information.

It has been very interesting to review some of these presidential addresses and compare the suggestions and recommendations of former leaders of the Society with the actual accomplishments of the Society. The two major accomplishments seem to have been the building up of the library, and the steady increase in the Society's membership. We have a good library, which could be greatly improved by the more active interest of the membership of the Society in its upbuilding. The membership has been increased, but I wonder if the morale and spirit permeating the membership has improved during these years. Certainly the attendance at our meetings has not increased in proportion to the increase in membership. One wonders if the vast bulk of the membership is enthusiastically interested in the Society.

It has seemed to me that the Society lacked definite and permanent policies, regarding both its own activities and its activities relative to the community. The only permanent policies of the Society seem to have been the library, the membership, and the programs. These correspond with three of the objects or problems of the Society, but only in a very limited degree, and these might fall under the headings of scientific research, medical education, and unity of the profession. These three objects have been attained only in a very small degree by these limited policies of the Society. The Society should have a much wider interest in scientific research than the putting on of programs, should have a much broader view of medical education than is embodied in the carrying out of its programs and the slow development of its library, and should have a much more active interest in the unification of the profession than the simple collection of the names of reputable

medical men in this community on the roster of the Hennepin County Medical Society. Little has been done by the Society to promote good fellowship among its members, and this is the first of the propositions enumerated in the constitution. It is of vital interest to the continued existence of this Society that its own objectives be carried out within its organization, and that its organization be perfected, but not with the viewpoint that the Society is an end in itself. We have a much larger field of activity in services to the public and to humanity by carrying out our own policies, not only with reference to the Society, but also with reference to the public.

During the past year we have endeavored to promote good fellowship through the activities of our Entertainment Committee. We have tried to appeal to the members of the Society from different angles in an effort to make the Society mean something to each one of its members. In this way men have been brought together who had no knowledge of one another, perhaps not even a speaking acquaintance. The results have been small, but not unimportant, and I trust that in the future the bringing together members of the Society in a social way may be one of the permanent policies of this organization.

I wish to thank the members of the Entertainment Committee for the successful carrying out of the annual banquet of the Society, the joint meeting with the Ramsey County Medical Society, and the successful carrying out of our golf and bridge tournaments.

Our programs have been good, and some excellent material has been presented at both the evening and the noon-day meetings. I can say this without conceit because of the kind co-operation of those who have developed the programs in the various fields of medicine, which have been presented in series of meetings. My only regret regarding the programs has been that the meetings were not more largely attended. The failure of our members to attend the meetings and hear these excellent programs is difficult to comprehend. We are now developing a plan, which is in partial working order, to make telephone connections with each member of the Society on the day of the meeting. If this plan fails to increase our attendance it will be abandoned.

I am afraid little has been accomplished in the field of medical education even among our own members. Various attempts have been made



to secure the co-operation and interest in larger educational projects which would tend to make Minneapolis a very important center for medical education. We should be in constant touch with and interested in the development of medical education in this community.

Toward unifying the profession, I feel that little has been accomplished. In spite of the fact that we have a very large membership, or perhaps because of this fact, there is in my opinion very little real professional unity. I am convinced that one of the most important steps in the unification of the medical profession would be the establishment of an adequate home where all meetings of interest to medical men might be held. The desirability of this has been recognized for many years. The carrying out of the policy has not been persistently and consistently before the Society, but it has been my hope that this might be established on a firm foundation during the past year. I wish to thank the Committee on Permanent Policy and the Trustees for their efforts in accomplishing this object. The fund accumulated is small, but it is a nucleus for larger things. This fund is, I believe, now established on a definite basis. It is, in my opinion, the task of the younger members of the Society to push this project. I am sure that they will meet with help and encouragement from the older members of the Society who have neither the energy nor the time to carry this project to its completion. As indicated earlier in my address, I think the Society should strive, if possible, to obtain this goal at its seventy-fifth anniversary, about six years hence.

I have tried to point out how the Society has failed to carry out, not only its own permanent policies, but also those in relation to the public and particularly to public health. The Society should be ever ready to assume intelligent leadership in public health matters. The members of the Society should be encouraged to exercise their initiative in developing public health projects, and they should enlist and secure the active co-operation of the Society in carrying out such projects as are worthy. The Society should attempt to have its representatives sit on the governing boards of every health agency in this community. We are now officially represented by the president of the Society on the Budget and Distribution Committee of the Community Fund representing the Council of Social Agencies. We are also represented on the Executive Committee of the Hennepin County Tu-

berculosis Association, on the Cancer Committee, the Hennepin County Public Health Association, and the Board of Management of a Permanent Psychiatric Clinic. We also have official contact in an advisory capacity with the health activities of the School Board.

We should not only strive to maintain our proper position in relation to the health activities with which we are already definitely associated, but should persistently try to secure representative contact with all the health and welfare agencies. With appropriate representation in these different agencies we should be able to render definite service to the community. In this way we will gradually educate ourselves, as well as others, to understand better some of the larger needs of the community; and thus a better mutual understanding will result among all those who are interested in human welfare.

We should perform these functions intelligently in a broad minded manner with an eye to rendering services in the community, carrying out such services in a manner which is not detrimental to the interest of the medical profession which would also ultimately be detrimental to the public. We should see that we have "Blue Sky" health laws to protect the public against the various health promoters. The laity are as gullible in matters of health as doctors are in the world of finance.

In these days of complex social organization the effort of an individual counts but little. Whatever we as individuals accomplish for common welfare must be done either through our own Society or other organizations. Each member should try to understand and further the objects of this Society so that it may fulfill its destiny. This organization should strive to comprehend and help each member solve his problems and add to his success in his ethical, proper, and legitimate activities. Mutual help, co-operation, and team-work will add greatly to the prestige of the medical profession.

The multiplicity and the lack of co-ordination of medical activities are disastrous to the effectiveness and prestige of the medical profession. All medical societies and health activities should center around this as the parent organization. These smaller societies should be the children of this larger comprehensive unit, and make up a happy, prosperous, and influential family. The various health activities of this community should center in this organization and radiate from it as the spokes from the hub of a wheel. We should further be so associated with the

welfare activities of the community that the whole vehicle of human welfare would run smoothly on the wheels of good health. We must, however, be very careful not to be the fifth wheel in this complex mechanism.

In our relation with one another let us try to make as many contacts as possible,—social, professional, and scientific,—so that we may have a better mutual understanding. In this way we can avoid much friction among ourselves and create more respect for each other. The more we honor ourselves the more we shall be honored by others. The Memorial Services which we held during the past year would not give the impression that we hold one another in very great esteem. I thank the Historical and Necrologic Committee for the splendid services arranged which failed only in the attendance.

In our Society let us have some permanent objectives which we seek to attain. For these we must strive consistently and persistently. Let us have ethical standards and professional ideals, but let us also recognize that they may need to be altered with changing conditions. Let us try to grasp the fundamentals of our ideals and then modify their applications as times change. Let us, above all, avoid that which causes misunderstanding, friction, and jealousy in our own ranks. Both great and small among us should conform to the same standards. We must avoid having dual ethical standards.

In considering our relations to the public we must remember that we should carry out two primary objects: first, the prevention of disease, and, second, the cure of disease. This applies equally to our contacts with individuals and the public at large. We must indicate and advise our individual patients how to avoid sickness, to detect any disease in its incipency, and to take the proper methods for its eradication.

The laity is being educated to consult physicians by those who are conducting the campaigns against tuberculosis and cancer. The

public is being urged to see physicians during pregnancy, infancy, and childhood by those who are carrying on these campaigns. The physicians from whom they seek advice must render service, or other men and methods will be sought.

There is now being inaugurated a campaign for periodic health examinations. Are the individual members of the medical profession ready to render this service to members of the community? In this connection I have wondered how many physicians "follow up" their patients. When patients place themselves in our care have they not a right to expect that their health will be safeguarded? If we took out a fire insurance or a life insurance policy and the company allowed it to lapse without a follow up it would hardly be free from blame. Are not the health and life of an individual much more important? We are, in a sense, in the position of their health assurer. They cannot be expected to know the clinical course and sequelæ of the diseases with which they are afflicted.

Let us be on more intimate terms with the public. We have no secrets to keep—let us share in simple terms our knowledge with them in so far as it is possible to give it to them.

We should lead in and supervise all public health work through our members who are best competent to handle the different phases of this work. We have tried through our various Committees on Health and Hospitals, General Hospital Site, School Board, and Publicity to bring about a better understanding of some of these problems. I wish to thank the members of these committees for their efforts and accomplishments.

We should keep constantly before us the ideals of service, loyalty to our calling, believing that to a large extent service is its own reward. Service is our aim, and just compensation is our due. The practice of medicine is a privilege granted by the State to but a few of its citizens. The pursuit of happiness and the enjoyment of life and health are the inherent right of every citizen. We are privileged to help others attain their right to happiness, health, and long life.

## THE PRESENT STATUS OF RADIATION THERAPY IN CANCER\*

By ARTHUR U. DESJARDINS, M.D.

Section on Radium and Roentgen-Ray Therapy, Mayo Clinic  
ROCHESTER, MINNESOTA

The attitude of the medical profession towards radiotherapy as applied to cancer, is a mixed

emotion. On the one hand are the "die-hards" who refuse to be convinced, or to admit, that sound radiation treatment is of any value; on the other hand are those who would have us believe

\*Presented before the Hennepin County Medical Association, November 5, 1923, Minneapolis, Minnesota.



that radium and  $x$ -rays can cure everything from cancer to baldness. Most physicians who have seen many patients subjected to radiation have been struck by its unquestionably definite and sometimes astonishing effect on certain lesions. Even in certain cases of cancer, more or less complete regression of the tumor and partial or complete restoration to health are not infrequent. It is chiefly this problem of radiation as applied in the treatment of malignant conditions, which I shall discuss.

One of the outstanding characteristics of a malignant tumor is the atypical and hyperactive metabolism of its cellular constituents, which, in fact, constitutes the very basis of malignancy. Although the causes of such hypermitosis are still unexplained, it is known that the rate of mitosis determines the rate of growth of a tumor. Well-controlled experiments, carried on over a period of years, have conclusively established and repeatedly confirmed that the cell is most sensitive to radiation during the period of mitosis. (Regaud<sup>5,6,7</sup>) According to Mottram and Russ and others, the cell is especially sensitive during the metaphase. As a corollary, Richards has shown that "the resting nucleus is much more resistant to the effects of radiation."

This fact and the difference between the rate of mitosis of tumor cells and that of the surrounding, normal tissue cells constitute the essential basis for the application of  $x$ -rays and the B and Y rays of radium in the treatment of malignant lesions.

The action of radiation on the various types of cells varies considerably. After radiation the chromatin is the first part of the cell to show definite changes, such as pathologic alterations in mitosis, clumping of chromosomes, and karyolysis or disintegration of the chromatin. Although not definitely proved, it is at least probable that the protoplasm also is injuriously influenced.

Generally, the less the tendency to differentiate, and the greater the proliferative activity of a tumor, the greater is its radiosensitiveness. Also such tumors are more sensitive to radiation than the majority of other tissues. However, certain factors, such as increase in the vitality of a tumor through an exceptionally favorable vascular supply, or through its tendency to produce paraplasmic structures, may cause resistance to radiation.

#### SENSITIVENESS OF VARIOUS TYPES OF TUMORS

Tumors differ in radiosensitiveness within

fairly wide limits. Neoplasms, such as occur in Hodgkin's disease and lymphosarcoma, are very strikingly influenced, even by relatively small doses of radium or  $x$ -rays, while others, such as melano-epithelioma, are seldom affected. Between these two extremes are all grades of radiosensitiveness, corresponding more or less to the effect on the normal tissue, to which the tumor is morphologically related. The relative sensitiveness of lesions to radiation may be roughly graded according to type: teratoma, lymphoma, sarcoma, carcinoma or epithelioma (basal and squamous-cell), endothelioma, and melanoma.

While certain sarcomas respond quite readily to radiation and regress rapidly, others are little, if at all, influenced even by large doses. Fibrochondro and osteo-sarcoma are especially resistant. Moreover, even though the primary tumor may diminish greatly, or disappear entirely as a gross lesion, the great tendency of sarcoma to metastasize early commonly removes all hope of permanent cure. However, it may be possible to bring about a very appreciable degree of palliation for a time.

In order to study the action of radiation on carcinoma and epithelioma, the basal-cell type must be separated from the squamous-cell because, while they are all derived from essentially the same kind of cells, basal-cell epitheliomas have little tendency to differentiate, and this is reflected in greatly increased susceptibility to radiation. About 90 per cent of such cancers can be permanently cured by thorough radiation treatment. The opposite is true of the squamous-cell type, with its greater tendency to differentiate and metastasize.

#### ACTION OF RADIATION ON CANCER CELLS

The effect of radiation on cancer depends largely on the dosage. With adequate radiation, the cells in the period of metaphase at the time will, after a few days, begin to show definite changes, such as swelling (edema), disarrangement, clumping, disintegration, and scattering of the chromatin; vacuolization of the protoplasm, rupture of the cell wall, and replacement by newly formed connective tissue. In cells that have not quite reached or have just passed the metaphase, similar but incomplete changes occur, as evidenced by more or less pronounced disturbances in the process of mitosis, lowered metabolism, production of anomalous cell forms, and efforts at regeneration, more or less complete, depending on the relative susceptibility of differ-

ent cells in the tumor. In certain of the cells, still smaller dosage may produce transient or prolonged suspension of metabolic activity, and, if repeated, may gradually reduce the power of the tumor to grow, within certain limits. However, one important effect of repeated sublethal doses is to increase the resistance of the cells, permitting the tumor to recover its original power of growth; therefore the action of radiation on any type of cell depends on the dosage, and may be destructive, inhibitory, or may have no effect.

#### STIMULATION

The possibility of stimulating tumor cells has been postulated frequently, and certain physicians do not recommend radiation treatment for fear the rate of growth may be increased rather than diminished. This fear, which has been greatly exaggerated, is the result of certain experiments on tissue cells, developing eggs, and certain plants and seeds, showing that radiation can produce a stimulating effect. But, as Loeb has pointed out, this effect is almost invariably temporary, and the normal metabolic rate of the cells is soon restored, or, often, stimulation may be followed by retardation of growth or even by ultimate destruction. Such stimulation is artificial and probably represents a compensatory effort of the cells, or it may be interpreted as a disturbance in the mechanism regulating cellular activity, which finally leads to transient or permanent cellular disability.

In any tumor there are a number of cells in different stages of metabolism at the same time, some in the metaphase, some approaching it, some just past, and others in the resting stage. A dose of radium or  $x$ -rays sufficient to destroy only the cells in the metaphase may more or less inhibit the activity of the other cells for a time, but not permanently. This explains why most of the patients whose tumors have been treated are not permanently cured.

#### EFFECT OF RADIUM AND X-RAYS

There is no essential difference in the action of radium and  $x$ -rays on cells, and generally there is no competition between the two agents. In certain lesions the use of one or the other agent is preferable, depending on the nature, size and location of the lesion, and on the nature and available form of the agents themselves. Certain relatively small superficial or accessible lesions are best treated with radium, while comparatively extensive or deep and directly inaccessible lesions are best treated with  $x$ -rays. In

many cases both agents can and should be combined; the desirability of one or the other also depends on how effectively the technic can be adapted to a particular case.

Radium is available as such, is practically indestructible, and its activity continues indefinitely unimpaired. One of its properties is the continuous discharge of a gas known as *radium emanation*, which can be collected in glass capillaries and utilized in much the same way as the element itself. This emanation, however, deteriorates rapidly and its activity diminishes at a definite rate. It is effective approximately thirty days. On account of the high cost and the danger of losing radium, many institutions utilize the emanation, loss of which would be of little consequence.

The practice of burying in the tissues small glass points or "seeds" containing varying amounts of radium emanation has been extensive for some years. The method has certain advantages which appeal to radiologists. The radiation units can be injected directly into the tumor or lesion, and thus have a full effect in every direction; the units are sufficiently small to make slight differences in the radiation strength for each unit of little importance, especially when a number of such units are introduced at the same time. Emanation is also used in hollow needles, commonly of steel, into which are placed seeds or glass points in sufficient quantity to make up any predetermined strength. Bare seeds are indicated in relatively small lesions, while the larger needles, containing approximately 10 mc., are used in large lesions or tumors. However, when needles are employed, it is generally preferable to use as the radioactive source the stable salts of radium rather than the emanation.

The rapid rate of deterioration of emanation is a disadvantage. Although the rate is known and the dosage can thus be calculated, the mere necessity of such a calculation introduces a larger margin of error. The bare seeds possess further disadvantages. The glass segments containing the emanation, being left in the tissues permanently, become so many foreign bodies with potentialities that cannot be entirely disregarded. However, of much greater importance is the fact that such units allow all of the B and Y rays to pass out into the surrounding tissues. Both experimentation and experience have convincingly and repeatedly shown that B rays and the softer Y rays have a marked caustic effect often leading to necrosis and



sloughing. It is not uncommon, following treatment of a nodular malignant focus by injecting bare emanation units, to see the lesion slough and be replaced by a sluggish, indolent ulcer that may resist all treatment for a long time. Although to a lesser degree, the steel needles, which do not filter out all the B rays, have the same disadvantage.

The present trend is toward the restricted use of emanation in favor of the more stable radium salts and toward higher filtration and smaller units, such as platinum or gold needles containing 2.5 or 5.0 mg. of radium element, and filtering out all the B rays and the softer Y rays.

#### SURGERY AND RADIATION

In cases in which both surgery and radiation are used, the closest co-operation between surgeon and radiologist is necessary, both working for the ultimate good of the patient. The surgeon who is content to save only one of five cases of cancer of the breast, and is unwilling to try supplementary radiation, or insists on operation in cases of carcinoma of the cervix when equally good results would be obtainable by radiation alone, may be left to his fate; the same is true of the radiologist who does not recognize his limitations.

To illustrate the present tendency in radium technic, a tendency which is also a splendid example of co-operation between surgeon and radiologist, I shall describe the technic employed at the Institut du Radium, of Brussels, in the treatment of cancer of the rectum. For some still unknown reason, cancer of the rectum has heretofore appeared to be exceptionally resistant to radiation. In attempting to cope with this situation, the surgeons and radiologists identified with this institution have worked out a technic, the essential basis of which consists in thorough exposure of the tumor by the surgeon, and the radical but logical employment of radiation by the radiologist.

The patient is placed in a reversed Trendelenburg position. The incision is carried over the sacrum, around the anus, and down the perineum. The anus and lower rectum are next separated from the surrounding structures. Then, while an assistant makes traction on the rectum, the surgeon removes as much of the sacrum as necessary to expose the entire tumor. Here the surgeon is replaced by the radiologist, who, with one finger in the rectum, first inserts in healthy tissue beyond the zone of involvement a complete radium barrage made up of platinum needles

containing 5 mg. of radium element, and 0.5 mm. thick (filtering out the B and soft Y ray), planted at definite intervals. These needles are passed down to, but not through, the normal mucosa. The malignant zone itself is attacked by means of similar needles introduced at regular intervals throughout the neoplasm. A large sterile gauze pack is applied and kept on until the needles have been in place long enough to deliver the dosage decided on. The needles are then withdrawn and the wound closed by the surgeon. (The surgical phases of this technic should be carried out with as little cutting of blood vessels and lymphatics as possible.) Further radiation is then directed to the entire pelvis by means of  $x$ -rays. Such procedure may seem radical, but it is legitimate and is an attempt to obtain good results where heretofore they have been indifferent. However, the points I wish to emphasize are that, whenever surgery and radiation must be considered, prejudice on one side or the other cannot replace the sound, open-minded study of facts, and the technic, whether surgical, radiological, or combined, should be planned to deal as effectively as possible with the requirements of the case.

Other similar modifications have, within recent years, brought treatment by the  $x$ -rays to a new level of effectiveness. For many years  $x$ -rays had yielded satisfactory results in certain lesions involving the tissues at the surface of the body, including certain types of malignancy. There had likewise been distinctly encouraging results in certain types of tumors within the body, while in others evidence of benefit was but partial or absent. It has long been felt that one of the chief causes of such discrepancy was the inability, with the technic available, to deliver throughout the malignant field a dose sufficient effectively to bring about the direct or indirect destruction of the anomalous cells. To overcome this difficulty it was necessary to obtain greater penetration by increasing the thickness of the filtering medium, and by using higher voltages which increase the proportion of rays of short wave-length in the  $x$ -ray beam. These are the chief reasons for the so-called high voltage machines now so much discussed. Such apparatus does not possess supernatural powers, but does enable the radiologist to obtain results in cases which previously could be influenced but little, if at all. Such high-voltage machines were brought out and used in Germany during the war, and clever exploitation of their advantages created a stir in professional circles.

Certain workers were, for a time, somewhat radical in their ideas and technic, but recently a more conservative and rational note is being heard in many quarters, and its volume is daily increasing. It has been learned that the use of the massive dose in one prolonged sitting, advocated by a few, could, in some cases, do more harm than good. This can be compared with the attitude some years ago of certain surgeons who were inclined to consider the pathologic condition rather than the patient. Fortunately, this tendency is now less evident. When this high-voltage wave struck America three or four years ago, many radiologists, conscious of their inability notably to affect but a small proportion of malignant tumors within the body, eagerly took advantage of this new development. There is no doubt that more or less marked improvement can now be obtained in cases which heretofore showed little response to the old methods. The exact limits of its usefulness have not yet been definitely established; in the meantime it is folly to labor under the delusion that high-voltage x-ray treatment is a cure-all. Nevertheless, used intelligently, it constitutes a distinct advance, and is a means of relieving suffering and prolonging life.

To convey some idea of the possibilities and probabilities of radiation in malignancy, I shall consider its use in three common forms: cancer of the breast, epithelioma of the uterine cervix, and the lymphoma group (Hodgkin's disease and lymphosarcoma).

#### CANCER OF THE BREAST

The aim of radiation treatment in cases of cancer of the breast is not to replace surgery in the operable cases, but to supplement it, the object being to diminish or delay the incidence of recurrence. The fact that only one of five victims may reasonably expect permanent cure, even when treated by the best type of surgery, should be sufficient to make any surgeon eager to try any and every means that offers a chance to improve such results. Yet many surgeons remain unwilling to co-operate effectively with the radiologist. Patients are subjected to operation who are really beyond surgical aid (supraclavicular involvement), in spite of the fact that radiation often offers as much or more palliative relief than surgery. Surgeons informed of the possibilities of effective radiation confine operation to cases in which the likelihood of achieving complete excision of the malignant growth appears clinically unquestionable. I am not

unmindful of the advisability of occasional palliative excision in certain ordinarily inoperable cases, but the more familiar the surgeon is with the effect of radiation in such cases, the less he will be tempted to intervene. Even when such intervention seems desirable, the radiologist should first be consulted. Of course, inferior radiology may mar the effect of superior surgery almost as much as injudicious surgery spoils most effective radiologic procedures.

Radiation, in conjunction with surgery, in the frankly operable cases should be so planned and executed as to make it most effective. This is done by thorough preliminary röntgenization, not only of the region involved, but of the entire lymphatic drainage. The procedure should be repeated once or twice after operation, depending on the degree of glandular involvement found microscopically. One or two weeks should elapse between the preliminary radiation and the operation to allow time for sufficient cellular changes to minimize the possibility of subsequent surgical dissemination. Unless the dosage is carried to extreme limits, no interference with wound healing should be noticeable. More time will be required to determine whether our expectations in this direction will be even partly fulfilled. However, even now it is significant that surgeons who have been able thoroughly to test the method, advocate its more extensive use.

In the inoperable cases more or less pronounced effect, ranging from complete and prolonged local regression to mere transient inhibition, is commonly obtained. Unfortunately, recurrence or metastasis is the rule. Nevertheless, life is often greatly extended, pain is relieved, surface ulceration is prevented, and in a few cases, even multiple, nodular, pulmonary metastatic foci may be made to disappear, and the patient restored to useful activity for many months.

In the inoperable and borderline cases, thorough radiation treatment may so improve the condition that surgical amputation as a palliative measure seems feasible from a strictly technical standpoint, but, from the standpoint of the patient's welfare, the effect of such a measure is often pernicious; it apparently opens up to the remaining cancer cells fresh avenues of activity and the effect is like that produced by touching a match to a mound of dry leaves. Therefore, when radiation has produced relatively satisfactory improvement, palliative operation should not be undertaken lightly in cases of cancer of the breast or other malignant tumors. In some of the inoperable and recurrent cases, radium



can be effectively combined with the  $x$ -rays, and its use in suitable cases should not be neglected.

#### CANCER OF THE UTERUS

Cancer of the uterus constitutes a different problem in some respects. When the disease is limited to the fundus, hysterectomy is still the method of choice. The application of radium is somewhat uncertain, largely because of the impossibility of placing it with exact reference to the lesion; therefore radium should be reserved for those cases in which total extirpation is impossible, or contra-indicated. Whether treated locally by surgery or radium, thorough röntgenization some time before (two to four weeks) and shortly after operation, or to supplement the radium, should be employed.

However, when the malignant process involves the cervix, the advisability of operation is even more remote, except for special reasons. The immediate and end results of surgical intervention are not especially noteworthy, and few surgeons feel like boasting about them. Even in the early cases, sound radiation treatment is a worthy competitor. Granting some leeway for further argument and demonstration, surgery should be excluded from all other cases, because here it cannot compete with radiation. Cancer of the cervix is particularly responsive to radiation because it can be so effectively brought to bear on the diseased tissue. Radium can be inserted directly into the cervical canal, and from this vantage point its rays exert their full effect in every direction; little or none of its energy is wasted. Further action can be produced on the lesion itself, as well as on its prolongations in the broad ligaments, or in the vaginal approaches to the cervix, by making use of the vagina to increase the radium dosage to the entire territory surrounding the cervix.

Maximal radium effectiveness is restricted to a zone, about 1.5 to 2.0 cm., around the agent. For this reason, in view of the possible or demonstrable invasion of glands away from the cervix or along the bony confines of the pelvis, it becomes essential to supplement the locally delivered radium dosage by  $x$ -ray treatment from without. Here, owing to the depth of the involved tissues,  $x$ -rays generated at high voltages are necessary. The patient having been measured, the radiologist, by the use of so-called penetration charts prepared from physical measurements made under known conditions, can place his dosage so as to bathe the entire pelvis uniformly in a radiation atmosphere. The fact

that few patients are permanently cured is not an argument against the method, for the simple reason that the radiologist is too often regarded as a sort of pathologic junkdealer; commonly he is consulted only if no other method offers a promise of glory.

Generally, it is possible to grade all such cases on the basis of a careful examination, into two rough groups: (1) those in which we may reasonably expect to bring about a permanent cure; in these the treatment should be pushed with vigor and thoroughness, but if the initial effort is not completely successful, no amount of subsequent treatment is likely to achieve success; and (2) those in which a cure is impossible or unlikely; here the object must be to obtain the greatest possible degree of improvement, and this can best be accomplished by more conservative measures repeated from time to time according to individual requirements.

#### LYMPHOBLASTOMA

Ever since the communications of Thomas Hodgkin, in 1832, and of Samuel Wilks, in 1856 and 1865, attracted the attention of the profession to the group of malignant conditions classified as lymphoma or lymphoblastoma, many forms of treatment, medical and surgical, have been tried. Various drugs have been advocated from time to time, but, aside from brief and transient improvement in certain cases, the fatal course of the disease has not been greatly impeded. Surgical excision of notably involved groups of glands has also been unsuccessful, and is seldom considered at the present time.

The only form of treatment that exerts noteworthy influence on such morbid states is radiation by means of  $x$ -rays and radium, used independently or in combination. The intelligent employment of such treatment often yields striking results, even in cases in which complications of a more or less serious nature are impending. Many patients are completely restored to normal health, while others are only partially improved. Even in the presence of extensive mediastinal glandular involvement, with or without pleural effusion, it is often possible to cause such adenopathy to disappear and the fluid to be absorbed. Unfortunately, the improvement is not permanent: it may continue for months, or even for two or three years, but sooner or later recurrence occurs in the same, or in some other region and is usually fatal.

In cases of Hodgkin's disease and lymphosarcoma, the average duration of the disease

from the onset of symptoms, without systematic treatment, is approximately two and one-half years.<sup>2</sup> While we are not yet in a position to assert that radiation actually prolongs life, it may be asserted positively that radiotherapy is a means of relieving symptoms, more or less completely, for a long time, and of making the life period of such patients infinitely more comfortable. In the treatment of these conditions, radium plays a relatively minor part. It is useful in dealing with the large cervical and axillary adenopathy so often encountered, because the action of radium on such adenopathy is generally more rapid than that of  $x$ -rays. But to combat deep adenopathy, mediastinal or abdominal,  $x$ -rays are more effective. In fact, to obtain the best results, treatment should not be confined to the superficial and palpably enlarged glands, but should be more or less routinely directed to all the important lymphatic channels: cervical, axillary, mediastinal, abdominal and inguinal.<sup>1</sup> This is best accomplished by combining the two agents as previously indicated.

## SUMMARY

Radiotherapy is not a cure-all in malignant conditions; it cannot even be called a curative

agent, since in but a small percentage of cases is the disease permanently overcome. That this small percentage could be considerably increased if patients suffering from malignancy were referred to the radiologist earlier, is no doubt true, but in this direction we must feel our way cautiously and advance only as definite knowledge is obtained. However, as a palliative agent, radiotherapy is of very definite value in many forms of malignancy, and its judicious employment can render the greatest service to many unfortunate victims.

## BIBLIOGRAPHY

1. Desjardins, A. U.: The radiation treatment of Hodgkin's disease with particular reference to mediastinal involvement. *Jour. Radiol.*, 1923, 161-171.
2. Desjardins, A. U., and Ford, Frances A.: Hodgkin's disease and lymphosarcoma. A clinical and statistical study. *Jour. Am. Med. Assn.*, 1923, lxxxii, 925-927.
3. Loeb, L.: The effects of Roentgen rays and radioactive substances on living cells and tissues. *Jour. Cancer Res.*, 1922, vii, 229-282.
4. Mottram, J. C., and Russ, S.: Observations and experiments on the susceptibility and immunity of rats towards Jensen's rat sarcoma. *Proc. Roy. Soc. London, Series B*, 1917-1919, xc, 1-33.
5. Regaud, C.: Le rythme alternant de la multiplication cellulaire et la radiosensibilité du testicule. *Compt. rend. Soc. de biol.*, 1922, lxxxvi, 822-824.
6. Regaud, C.: La radiosensibilité des néoplasmes malins dans ses relations avec les fluctuations de la multiplication cellulaire. *Compt. rend. Soc. de biol.*, 1922, lxxxvi, 993-995.
7. Regaud, C., and Lacassagne, A.: A propos des modifications déterminées par les rayons X dans l'ovaire de la lapine. *Compt. rend. Soc. de biol.*, 1922, lxxxvii, 938-940.
8. Richards, A.: The effect of  $x$ -rays on the rate of cell division in the early cleavage of planorbis. *Biol. Bull.*, 1914, xxvii, 67-96.

## A CASE OF BILATERAL HYDRONEPHROSIS IN A MALE FETUS OF SEVEN AND ONE-HALF MONTHS

BY ALDO C. MASSAGLIA, M.D.

Professor of Pathology, State University of Mississippi  
UNIVERSITY, MISSISSIPPI

Several cases of antenatal hydronephrosis have been communicated, due either to an absence of the ureters or to the obstruction of some part of the genito-urinary tract, or to the torsion of the penis in the male or to imperforate hymen in the female. (Sutton.<sup>1</sup>) But the case which I relate here, a case of bilateral hydronephrosis in a male fetus of seven and one-half months, shows that hydronephrosis may originate from a cause which differs from all those that have already been mentioned; moreover, it concurs to throw more light on the problems of the function of the kidneys during fetal life and on the formation of the amniotic fluid.

Concerning the time at which the kidneys begin to function, Edgar,<sup>2</sup> in relating the scientific knowledge on the problem, says, "The kidneys begin to assume functional form at the seventh week. At first their ducts communicate with the rudimentary allantois, but, since the bladder is derived from this organ, the ureters

finally empty into that viscus. In the course of development urine is excreted by the fetus from time to time, as can be proved by the presence of urea in the amniotic fluid. There is always a certain amount of albumin in the fetal urine."

As regards the origin of the amniotic fluid, the same author (Edgar<sup>3</sup>) concludes that it is of maternal and fetal origin,—a transudate fluid from the placenta, and urine, secreted from time to time by the fetus through the urethra. These views, however, are not accepted by all authors. Just as there is a difference of opinion concerning the origin of the amniotic fluid, so there also exists controversy concerning the origin of the dropsy of the amnion.

## CASE REPORT

At 11:00 A. M., April 14, 1922, at St. Michael's Hospital, Grand Forks, North Dakota, a patient, under the care of Dr. J. E. Hetherington, delivered, due to abortion, a dead seven and one-half month



male fetus. I performed the autopsy.

History: Dr. Hetherington related that nothing of importance existed in the history of the mother. During the pregnancy she had a Bartholin's gland infection; before the end of the pregnancy, polyhydramnios was formed.

External examination: Apparently normal size for a seven and one-half month fetus. Five fingers and a thumb on each hand. Abdomen, greatly distended and fairly hard. No other external lesions.

Opening the body:

1. The thorax:

Thymus showed normal development.

The pleural cavities contained a scanty amount of fluid.

Lungs were in a state of atelectasis; when placed in water they sank. No lesions were noted in the lungs.

The heart was normal.

2. The abdomen: Upon opening the abdomen two enormous sacs, one on the left and the other on the right side of the body, appeared apparently in the position of the kidneys. These sacs occupied a great deal of the abdominal cavity, and exercised some pressure on the neighboring organs. A scanty fibrinous exudate with some recent adhesions was found upon the sacs and in the near vicinity. The left sac, the larger, had the following dimensions: length, 10 cm.; breadth, 6 cm.; thickness,  $3\frac{1}{2}$  cm. Upon cutting it an almost limpid fluid with all the appearance and the chemical properties of the prenatal urine escaped. (Edgar<sup>2</sup>.) The sac appeared to be formed by an enormous dilatation of the pelvis and by a great distention and thinning of the renal substance. This varied in thickness from one to two millimeters in diameter, which means that almost all of the renal substance had disappeared. The ureter was pervious.

The right sac had the following dimensions: length, 5 cm.; breadth, 4 cm.; thickness,  $3\frac{1}{2}$  cm. Upon opening the sac it was found to be filled with a fluid similar to that of the left sac. The walls of the right sac had a trifle more abundant residuum of renal substance than did those of the left. The right ureter was also pervious.

Both of the kidneys, then, showed a morbid condition equal to that called "hydronephrosis."

The liver showed some passive congestion.

The spleen was in a state of moderate passive congestion.

Intestines, stomach, pancreas, mesenteric lymph glands, adrenal glands, and peritoneum were normal.

The bladder was greatly distended. Upon opening the bladder it was found to be filled with a fluid exactly similar to that which had filled the renal sacs. The genital organs were edematous. Torsion of the penis was not noted. The urethra was pervious.

Microscopical examination: At the microscopical examination the left sac (left kidney) showed that almost all of the "medulla" had disappeared; a proportionately more abundant portion of the "cortex" remained. In the "cortex" were found the glomeruli of Malpighi, all of which showed some degenerative processes (especially atrophy) in a more or less marked degree. "Cortex" and "Medulla" (the remaining of the renal substance) showed large masses of neoformed fibrous tissue, which had

taken the place of the destroyed renal epithelium. In several parts the uriniferous tubules still remained, but their lumina were dilated and their epithelium was in degeneration. Some of them were dilated to such an extent that they constituted small elongated cysts. Some proliferative changes had also occurred in the epithelium of the uriniferous tubules; the proliferation in some parts had almost acquired an appearance of small adenoma. Hemorrhages had taken place in the uriniferous tubules, and in the interstitial tissues among the uriniferous tubules; in some parts of the remaining renal substance, but rarely, an infiltration of small round cells was also noted.

The right sac (right kidney) showed the same lesions as those of the left sac, but less marked; more cortical substance remained. The right kidney, although in an imperfect condition, was probably still able to function.

Diagnosis and discussion: One important morbid fact was noted in the body: the formation of a bilateral hydronephrosis.

The form of hydronephrosis which had affected the fetus appeared equal to that form of hydronephrosis which occurs when the "urinary flow is interfered with only partially or intermittently." (Delafield and Prudden<sup>4</sup>.) That is to say, this form of hydronephrosis was greater in extent than that form due to a complete stoppage of the flow. Since none of the causes already described as determining hydronephrosis were found in the body,—that is to say, no hindrances to the passage of the urine were noted along the urinary tract,—the hydronephrosis of the present case may be explained only in the following way: The mother had suffered with hydramnios, which surely had changed the amount and the composition of its fluid, varying it according to the course of the disease. As we suppose that the kidneys pour their secretion through the urinary tracts into the amnion, the flow of the urine undoubtedly must have met a resistance in proportion to the variations of the amniotic fluid. Consequently, periods of inverse pressure arose for the kidneys, with the destruction of the renal substance, and periods of relief; from this condition the hydronephrosis was formed due to a partial or intermittent obstruction to the urinary flow.

This explanation of the cause of the hydronephrosis also supports the conception (Edgar<sup>3</sup>) that the kidneys of the fetus "after the communication between the bladder and the exterior of the body is completed through the agency of the urethra," from time to time, pour their secretion into the amniotic fluid, and that urine consequently concurs to form the amniotic fluid.

The death of the fetus may have been caused by one of the two following morbid conditions: (1) the hydronephrosis; (2) the hydramnios.

NOTE.—I wish to thank Dr. Hetherington of Grand Forks, North Dakota, for calling me to perform the autopsy of the fetus.

#### BIBLIOGRAPHY

1. Sutton, (John Bland): "Tumours, Innocent and Malignant," page 678, Seventh Edition, Paul B. Hoeber, New York, 1922.
2. Edgar, (J. Clifton): "The Practice of Obstetrics," page 79, P. Blakiston's Son and Co., Philadelphia, 1905.
3. Edgar, (J. Clifton): *Ibidem*. Page 67.
4. Delafield and Prudden: "A Text-book of Pathology," page 886. William Wood & Company, New York, 1922.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

FEBRUARY 15, 1924

## MINNEAPOLIS CLINIC WEEK

It has been decided by the Executive Committee of the Clinical Section of the Hennepin County Medical Society to hold the usual Minneapolis Clinic Week on the 6th, 7th, 8th, and 9th of May during the time the Public Health Exposition is on. This will give medical men, social workers, and clinicians an opportunity to demonstrate what clinical material is available to those who are interested spectators of the Health Exposition. This does not mean that the regular attendance at the clinics will be a massed audience, but will be held, as before, for doctors. Already inquiries have come to the Committee asking about Clinic Week, and as no literature has been sent out as yet the time will soon come when particulars will be given about the additional features of Clinic Week this year.

It has been decided, so far, that the first two days of Clinic Week will be given over to "dry clinics," such as were given at the meeting of the Tri-State Medical Society in Des Moines last November. There seems to be some confusion or question as to just what a "dry clinic" means, and the writer can do no better than quote from the experience at Des Moines. The entire program during these two days of Clinic Week will be given in an auditorium of sufficient size to accommodate all who wish to attend, and clinics will be given from a stage or platform on patients who are presented with histories and

for diagnostic ends; that is, a patient may be brought in as an ambulatory case or he may be brought in from a hospital on a cot. His history will be read and some man who is qualified will be given an opportunity to make a diagnosis and present his reasons therefore, without any operative procedure; consequently, a dry clinic practically means a diagnostic clinic without an operation. This will give medical men and specialists, as well as surgeons, an opportunity to present interesting cases from all angles, which later may be operated on or which may be treated. The last two days of Clinic Week will be given over to the regular hospital clinics, where operations will be preformed and where, perhaps some of the same cases that were presented in the dry clinics may be operated on. Then, too, the medical man and the special man may present their cases for further demonstration, particularly if they are unable to attend the two days of dry-clinic demonstrations.

This method of procedure has been found to be particularly interesting and instructive because it brings to the mind of the doctor the careful study of the history of the individual with all the points obtainable as a complete family record,—the onset, the progress, and the evidence of disease. We cannot, of course, expect to give the demonstrations that were given by the Tri-State Medical Society, but we can give in replica a smaller clinic and yet, perhaps, one as interesting so that every man may learn something from his attendance on Clinic Week.

It is suggested that the clinicians of Minneapolis begin to conserve their dry-clinic material, to have the cases carefully worked up so that they may be presented in full on dry-clinic days. Those who attended the Des Moines meeting will remember that it was not an infrequent occurrence for men to sit fifteen hours a day for four consecutive days at the remarkable dry clinics, papers, and lectures which were presented, and a clinic as interesting as the one at Des Moines is one that carries the auditor back to his college days when he worked like a Trojan in order to become a student of medicine.

We all need these demonstrations from time to time to show what we have overlooked and to emphasize the importance of more careful study and analysis of the sick. Kindly put in your note-book the dates of Minneapolis Clinic Week, May 6th to 9th, inclusive. A program will be worked up and presented as soon as possible, or at least information will be sent out regarding Clinic Week which will keep all of



our interested readers and clinicians well posted.

### MINNESOTA HEALTH EXPOSITION

It has been proposed to establish between May third and May twelfth an exposition which deals with matters concerning public health. This exposition was proposed by the Hennepin County Medical Society and sponsored by it after a very careful investigation of other expositions that have been held in various cities.

On account of the enormous size of the exposition it will be held in the Minneapolis Armory and the probabilities are that with the guarantee fund the exposition will be self-supporting from the beginning to the end. It will require about 30,000 square feet of space for the exhibits, 60 per cent of which are to be purely educational and produced under the supervision of the medical, dental, nursing, hospital, pharmaceutical, and social service professions. What space remains will be utilized for commercial exhibits which harmonize with the scheme of popular health education by visualization. The additional exhibits, manned by more than 1,500 volunteer demonstrators, will acquaint the public with the most important elements in modern prevention and treatment of disease.

The exposition will present a program of motion pictures, lectures, and special features which include many athletic performances and will probably require 2,500 participants. This part of the exposition will be given in the riding hall adjoining the Armory. It is expected that practically every organization, department, and institution in Minneapolis engaged in ethical health work will demonstrate its activities in this exposition. The exposition plan is presented by the National Health Exposition Association, whose president is Dr. A. T. McCormack, State Health Officer of Kentucky and Secretary of the Kentucky Medical Association. The plan also has the approval of the Trustees of the American Medical Association.

This probably is to be one of the largest and best educational exhibitions ever presented in Minneapolis; and in various other cities where such expositions have been organized the attendance has been from 40,000 to 300,000 during the week of the exposition. That the exposition will be carried on without expense to the Hennepin County Medical Society is due to the fact that the sale of booths and the sale of tickets will cover all expenses and that, eliminating all probabilities, the guarantors will not be called upon to pay out the amount they may have subscribed

as a guaranty fund. The exposition has the backing of the Civic and Commerce Association and other public organizations which are interested in public health service. It is to be carried out by a trained personnel on a flat-fee basis, and that is included in the estimate of expense that will be incurred. Of course, there is a possibility that money in excess of all expenses will be raised by the sale of tickets and booths, and all such profits will go to some recognized charitable organization.

THE JOURNAL-LANCET urges all of the medical men, not only of Minneapolis but of the state, to get behind this movement for purely educational purposes. During the exposition there will be examinations of individuals made to illustrate methods of examination, reports of cases, and all such work as will be interesting to the practitioner, whether general or special.

### "THE NEW DECALOGUE OF SCIENCE"

Here is a book by A. E. Wiggam that every physician ought to read because it deals with fundamental questions which have to do with biology, heredity, evolution, psychology, and anthropology, and as the book is written by a biologist it gives an interesting angle from which to study people,—the fit and the unfit. There is perhaps nothing new in the book, but the arrangement is such that it is pertinent to the questions of the day and is full of the author's personal comment. He quotes very largely from other authorities to back up his assertions, and, incidentally, he believes that the biologist is the man who should stand almost supreme; that he should be the advisor to legislative bodies and to many other organizations that have to do with the public destinies. He dedicates or addresses his book to the executive and to the statesman so that it covers a very wide field. It does not necessarily mean our own statesmen and our own president, but all others in authority; and he says to the president, "Biology is the science of living" and to the statesman "Biology is the art—and we hope some day may be the science—of the control of life."

He takes into consideration that the statesmen have a vast field which covers more than human beings and tells them that they are the chiefest arbitrators of the destiny of the race; they shall secure food, clothing, and shelter; they may decide who may starve and who may freeze; they are supreme in the education of the people from a social and economical standpoint, and they shall consider the failures of the people, and they

may decide who shall survive and who shall perish in the struggle for existence.

From a biological point of view this book is very interesting, and from a study in heredity it is of special value to the scientific physician—in fact to all physicians who take the trouble to investigate the history of the individual and his ancestors. In his introduction he says the good Samaritan of olden times on the road to Jericho and the modern good Samaritan on Broadway live in two different worlds; the former said, "Give a cup of cold water to your neighbor," and it was a precious admonition, but modern science sternly asks whether there are any colon bacilli in it.

The book is divided into warnings and the ten commandments. In the first warning he believes "the advanced races are going backward" because of the number of diseases which are rapidly increasing, at the same time that man's incapacity to resist them shows his defects. The second warning is that "heredity is the chief maker of man"; that in the germ cell from which every man is born there are resident those powerful personal forces by which he can rise in most any environment and, within the limits of human freedom, exclaim: "I am the master of my fate; I am the captain of my soul!" In his warning on heredity he looks on it from a biological, as well as a scientific, point of view, and does not in any way beg the question. As an illustration of what heredity may do, "our Pilgrim fathers landed in the wilderness yet they have left their impression through generations. The convicts which England sent to Australia had as good a chance as the Pilgrims, yet they have only succeeded in building the largest slums in the world." The third warning is that "the Golden Rule without science will wreck the race that tries it"; and that charity and philanthropy and your noble-hearted but often soft-headed schemes for ameliorating the conditions of life without at the same time improving the quality of life have failed and will fail to improve the human breed and are, in fact, hastening its deterioration. We are devoting too much of our taxes to the care of defectives, and too little to the improvement or benefit of the healthier classes; consequently our money spent for real prevention is very little. "Unwise charity," says a very wise man, "creates half the misery of the world," and "charity can never relieve one-half the misery which it creates. Brother nature slays its thousands, but in the end your hand-to-mouth charity will slay its tens of thousands."

When he talks of evolution he speaks in the most guarded manner and is not in any sense of the word irreligious in his comment. He thinks there should be no dispute between evolution, Christianity, and biology.

The fourth warning is that "medicine, hygiene, and sanitation will weaken the human race because we endeavor by frantic efforts to call mental and physical soundness out of the vacuum of nowhere and will weaken and further weaken the human breed unless at the same time we up-build, by selection, the boundless health, energy, and sanity that are always present in the stream of human protoplasm." Keep in mind always the fact that the germ cell is the real cell from which development comes, and this germ cell is never destroyed and is quite different from the living cell tissue which goes to form the structures of the body.

He talks a good deal about the fit and the unfit, particularly the unfit, and doubts the ability of the community to stamp out tuberculosis. We build great institutions to screen insanity from public view until their inmates are cured and returned to society and to reproduction. We prolong the life of the unfit, we do everything under the sun that is suggested, but we really do but little good. The author is quite pessimistic about the stamping out of these special diseases which are at present uppermost in our minds. But we only arrive at a certain level, which is a low one, and there all benefits practically cease. In the old days, without special provision or medical benefits, the hand of Nature fell heavily on the unfit and in barbarian days only the fit were permitted to survive; the sick were dropped by the wayside. Of course, in our enlightened age and efforts we cannot accept such definite standards, and we recall, too, that the old Spartans threw their weaklings and feeble over the precipice; but this would not be tolerated in this age, however serviceable it might be. "Vice throws a man over its own precipice, and vice purifies a race because it kills the vicious. We call it the theory of evolution, but in olden days they did not so designate it."

His fifth warning is that "morals, education, art and religion will not improve the human race."

It is impossible to review this work with any degree of satisfaction, and one must read the book to appreciate it. The ten commandments consist of the following headings: The Duty of Eugenics; The Duty of Scientific Research;



The Duty of the Socialization of Science; The Duty of Measuring Men (that is to say, the fitting of each and every man to his new form of environment); The Duty of Humanizing Industry; The Duty of Preferential Reproduction; The Duty of Trusting Intelligence; The Duty of Art; The Duty of Internationalism; and (the tenth commandment) The Duty of Philosophical Reconstruction.

#### Dr. SCHLUTZ, UNIVERSITY PEDIATRICIAN

Dr. Fredrick W. Schlutz, of Minneapolis, was appointed on the 31st of January by the Board of Regents at the University of Minnesota, Chief of the Department of Pediatrics. He succeeds to the position left vacant by the abrupt resignation and departure of Dr. Clemens von Pirquet, the Viennese specialist, who came to Minneapolis last fall to look over the ground but decided to go back to Vienna.

The appointment of Dr. Schlutz has created general satisfaction among the medical men, as he is amply qualified and trained in all departments of pediatrics. He has been connected with the University since 1910, and since 1914 he has been known as Assistant Professor of Pediatrics, but from now on will be a full-time professor and will give up his private practice and devote his entire time to the work at the University.

Dr. Schlutz has been trained in research and biochemical requirements of his profession as well as in the chemical and practical branches. He has written many medical articles and has had the opportunity to study medicine and pediatrics abroad. He studied at the University of Berlin, at the University of Strassburg, and at the Kaiserin Augusta Victoria Haus at Charlottenburg. This work he took up before his appointment in the University. He went abroad again in 1913 and studied at the University of Keil and at hospitals in Berlin, Paris, and London. He returned in 1914 to take up his regular work at the University, as well as his private practice.

Dr. Schlutz was born at Green, Iowa, November, 10, 1880. He is of French and German ancestry. His father, a graduate of a German University, was a clergyman; and his mother was a Frenchwoman. Dr. Schlutz received his bachelor's degree from Wartburg college at Clinton, Iowa, in 1898. In 1902 he received his medical degree from the University of Maryland. This was followed by a two years internship. He

was later senior assistant in a mining hospital at Eveleth, Minn. During the World War Dr. Schlutz served in the medical corps of the army, and was in charge of the contagious service at the base hospital at Camp Devens, near Boston, with the rank of assistant medical chief at the camp.

He was prominent in the organization of infant welfare work in Minneapolis, and for eight years was its medical director. He is also a member of the pediatric societies in the Northwest.

THE JOURNAL-LANCET congratulates Dr. Schlutz, or rather congratulates the University Medical School on securing Dr. Schlutz for Chief of the Department of Pediatrics. He will be found capable, and we know that he will be an untiring worker. The editor can see ahead a little and can visualize Dr. Schlutz as a busy man for the next few years. The greater part of his time will necessarily be taken up with the direction of his department; but he will have much to do with the development of the New Hospital for Crippled Children, provided for in the million-dollar gift of William Henry Eustis. Then, too, the University has planned that the care of the new-born child shall be under the Department of Pediatrics rather than in Obstetrics, as it has been. Surgery for children will be in the Department of Surgery and the care of cases under the Pediatrics Department. All diseases of children up to the age of 16 and under will be treated in the Pediatrics Department.

#### NEWS ITEMS

Dr. R. H. Heim, of Minneapolis, is attending clinics at Johns Hopkins and in Philadelphia.

Dr. Archibald MacLaren, of St. Paul, was re-elected chief of staff of St. Luke's Hospital last month.

Dr. O. F. Melby, of Thief River Falls, was re-elected president of the Oakland Park Sanatorium last March.

Dr. G. A. Paulson, a recent graduate of the Medical School of the University of Minnesota, has located at Duluth.

Dr. C. E. Caine, of Morris was re-appointed a member of the Minnesota State Board of Medical Examiners last week.

Minneapolis seems to be faced by a possible shortage in hospital beds that might be serious in case of a severe epidemic.

Dr. E. Z. Shapiro, of Duluth, has gone to Vienna for special study. He was accompanied by Dr. Chas. Giesen, of Superior, Wis.

The County Board of Marshall County will not employ a county nurse this year. The Board received many protests against such employment.

Dr. H. R. Weirick, of Hibbing, and Dr. N. M. Watson, of Red Lake Falls, were re-appointed members of the Minnesota State Board of Health last week.

Dr. George A. Stock, who has been superintendent of the Buena Vista Tuberculosis Sanatorium at Wabasha for eight months, resigned the position last month.

Dr. Alexander Barclay, formerly of Cloquet, now of Coeur d'Alene, Idaho, has gone to Europe for an extended course of work in the hospitals and clinics abroad.

The Goegebic County Public Health Hospital, just across the Minnesota line, at Bessemer, Mich., is ready for occupancy. Dr. Merlin Draper is the superintendent.

Dr. Robert M. Moore, who practiced at Glenwood (Minn.) from 1892 to 1897, died at Olathe, Kans., at the age of 55. He was killed by a train while crossing the track.

Dr. J. P. Jenkins, of Waubay, S. D., has been reappointed for a term of five years as Superintendent of the South Dakota State Board of Health and Medical Examiners.

The disappearance of Dr. Fred E. Fyle, of Geddes, S. D., on Dec. 11, 1923, is still a mystery. A reward of \$2,000 will be paid "for information leading to the discovery of his person or his body."

Dr. Carl E. Anderson, of Hartford, S. D., was married last month to Miss Grace Blake, of Berlin, N. D. Dr. Anderson is a graduate of the School of Medicine of the University of Minnesota. He will begin practice in Garretson, S. D., next month.

A public health exhibition will be given in Minneapolis on May 3rd to 10th, inclusive, under the auspices of the Hennepin County Medical Society and all the health organizations of the city. It will probably draw from ten to fifteen thousand people.

Dr. A. T. Laird, superintendent of the St. Louis County Sanatorium Commission, announces that tuberculosis clinics will be given every Tuesday and Saturday in Duluth, and on the Range towns on the other days of the week. There were 150 such clinics held last year, and more will be given this.

Dr. Frederick W. Schlutz, of Minneapolis, has been appointed Professor and chief of the Department of Pediatrics in the Medical School of the University of Minnesota, to fill the position made vacant by the death of Dr. J. P. Sedgwick last year, and occupied for a couple of weeks by Dr. Clemens von Pirquet, of Vienna, Austria.

Dr. Ozias S. Chapman, of Minneapolis, died last week at the age of 84. Dr. Chapman graduated from the Medical College of Ohio at Cincinnati with the class of '65, and began practice in Kansas in 1867. He came to Minneapolis in 1873, but soon went East because of poor health. He returned to Minneapolis in 1881, after having studied in Europe. He was a highly respected physician and man.

The General Hospital of Minneapolis has been conducting a 'speech clinic for the past year, which has been eminently successful. It receives both children and adults, and will accept people from outside the city so long as they can be cared for in the Clinic. We shall publish soon an account of its work, furnished, at our request, by Dr. List, superintendent of the General Hospital.

Dr. Herbert B. Crommett died at his home in Amery, Wis., on the 6th of February, at the age of 51. Dr. Crommett graduated at the Medical School of the University of Minnesota in 1896, and after serving one year as interne in the old Minneapolis City Hospital located at Montevideo, Minn., in 1900 he removed to Amery, Wis., and has since been actively engaged there in the practice of his profession.

The Cass County (N. D.) Medical Society met in the Commercial Club rooms of Fargo on January 25. After dinner a symposium on hyperthyroidism was presented, the following reading papers: Dr. O. J. Hagen on the "Physiology and Pathology;" Dr. T. H. Lewis on the "Clinical Aspects;" and Dr. A. J. Clay on the "Treatment." The meeting was unusually large, the papers were excellent, and the discussion was generous.

The Eighth Annual Clinical Session of The American Congress on Internal Medicine will be held in the amphitheatres, wards, and labor-



atories of the various institutions concerned with medical teaching, at St. Louis, Mo., beginning Monday, February 18. Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session. Address inquiries to the Secretary-General, Dr. Frank Smithies, 1002 N. Dearborn St., Chicago Ill.

Dr. Aldo C. Massaglia contributes to this issue of THE JOURNAL-LANCET another excellent article of his research work. His former papers were sent from Grand Forks, N. D., when he was a member of the faculty of the North Dakota State Medical School. He is now Professor of Pathology in the State University of Mississippi.

Dr. George Waldie, Superintendent of the Fair Oaks Sanatorium, the Wadena and Todd Counties tuberculosis hospital, resigned last month on account of a controversy with the governing board of the Sanatorium. Dr. J. J. McKinnon, of Wadena, was elected superintendent.

A physiotherapy clinic was held at the Fargo Clinic, of Fargo, N. D., on January 30, 31, and February 1. Dr. C. N. Callander and Dr. H. J. Fortin of the department of physiotherapy, assisted by their technician, Miss Jessie McLaren, were in charge. Lectures and demonstrations were given by Dr. A. J. Pacini, of Chicago, formerly chief of the Department of Biological Research of the United States. On the concluding evening all visiting doctors and those of Fargo and Moorhead who attended the clinic were entertained by Doctor Callander at his home at a stag dinner and smoker. The guests numbered forty-five. Among the out of town doctors in attendance were Dr. E. A. Pray, of Valley City, N. D.; Drs. Aborn and Simison, of Hawley, Minn.; Drs. Burnap and Baker, of Fergus Falls, Minn.; Drs. Bratrud and Wattum, of Warren, Minn.; Dr. Rutledge, of Detroit, Minn.; Dr. Wray, of Campbell, Minn.; and Dr. Stone, of Minot, N. D.

#### **Furniture, Instruments and Library**

Of the late Dr. J. M. Egan, of Minneapolis, are offered for sale. They can be seen at 1415 Emerson Avenue North, Minneapolis.

#### **Wanted: Physician on Salary**

An assistant physician for general practice on the Mesaba Range. Must be a high-grade man, able to assume responsibility. Good salary to right man. Address 58, care of this office.

#### **Office Position Wanted in Minneapolis**

By a young lady of good address, who will accept work for a half or a full day and who will give faithful and efficient service. The best of references. Address 52, care of this office.

#### **Physician and Surgeon Wanted**

In good town and large territory. The right man can do from six to ten thousand a year. For particulars address E. V. Peterson, Gary, S. D.

#### **Microscope Wanted**

A University Medical School Student wants to buy a good second-hand microscope. Address 407, care of this office. Give description and price.

#### **Position as Technician Wanted**

A mature young woman of experience, highly recommended, desires a position as a laboratory technician. Address 409, care of this office.

#### **Position as Technician Wanted**

By a woman with the best of training as a general laboratory technician. Can give the highest of recommendations, and will go to any part of the Northwest. Address 47, care of this office.

#### **Position as Office Nurse Wanted**

A graduate nurse with some office experience desires a position as office nurse; will accept a moderate salary. Address 412, care of this office.

#### **Minneapolis Office for Rent**

Above a drug-store in a splendid location for a physician in a suburban district. Phone Colfax 0906 or address E. Oredson, 3757 Chicago Avenue, Minneapolis.

#### **Position in Hospital or Clinic Wanted**

A graduate nurse with experience desires a position in a clinic or hospital. Will go outside of the Twin Cities. Best of references. Can do some x-ray work. Address 42, care of this office.

#### **Splendid Opening for a Physician**

Who will take up a country practice in the best and pleasantest town and community in Central Minnesota, not far from the Twin Cities. For particulars, address 45, care of this office.

#### **Position Wanted**

A young lady with four years' experience in taking medical dictation desires a change of location. Group practice or clinic preferred. Has also knowledge of x-ray. Address 49, care of this office.

#### **Trial Case and Fitting Frames for Exchange**

Complete trial case, fitting frames, and everything needed for fitting glasses, outfit worth \$100. Will exchange for Aloe Lightning cabinet or Therapeutic lamp in good order. Address Dr. A. H. Bullock, Cushing, Iowa.

#### **For Sale**

One Scanlon-Morris operating-table with nickel top, price \$300.00. One National Sterilizer, medium

size, price \$75.00. Both practically new. For further information call Highland 6609, or call at 1402 Fremont Ave. No., Minneapolis.

#### Practice and Drug Stock for Sale

I offer for sale my practice and drug-store, fixtures, drug sundries, and private stock of drugs. Town of 400; no other doctor. A good opportunity for a doctor or druggist or both. If interested write C. E. Sargent, M.D., Isabel, South Dakota.

#### Physician Wanted

Becker, Minn., wants a good live doctor *at once*. Big territory. 18 to 25 miles east, west, and north to any physician. Nearest one now 8 miles away and across the Mississippi river. Write J. W. Putney, President of Village Council, Becker, Minn.

#### Position Wanted

An expert x-ray technician, with a slight knowledge of routine laboratory work, desires a position, in the Twin Cities or the country, at a moderate salary. Will assist in office work or do any kind of work she can handle. Address 411, care of this office.

#### Position as Dietitian Wanted

A young woman of excellent training in a dietetic institute with a finishing course in a large Twin City Hospital, desires a position as dietitian or assistant. Excellent references. Expects only a moderate salary to begin with. Address 56, care of this office.

#### Practice for Sale

A \$4,200 practice in Southeastern Minnesota in town of 500 population. Good collections, territory, roads, etc. Location with equipment, \$650. Will sell part or all of equipment if desired. Reason for selling, other interests. Address 403, care of this office.

#### Half-time Office position Wanted

A young woman of twenty-nine with two and a half years training as a nurse at the Massachusetts General Hospital desires a half-time position in a physician's office in Minneapolis. Has had three months special experience at the M. G. H. Eye and Ear Infirmary. Address 54, care of this office.

#### Physician's Residence for Sale in St. Paul

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

#### Physician's Equipment and Instruments for Sale

Includes Allison table, oak instrument cabinet full of instruments, dressing table, nebulizing outfit with motor, apparatus for application of hot air, therapeutic lamp, high-frequency generators, blood-pressure apparatus, specialist's chair, sterilizer, etc. Price for quick sale \$250. Address 43, care of this office.

#### Wanted

Director, Bureau Child Hygiene wanted. He must be a graduate in medicine or public health. May be man or woman. Some experience in public health necessary. A recent graduate who wishes to grow up with the work preferred. Salary \$2,500 to \$3,000. Send complete credentials with first letter. Address the State Health Officer, Bismarck, N. D.

#### Physician Wanted

In a mud bath institution and health resort in Minnesota, which has a splendid building and good patronage and is equipped for both emergency and general surgery. Will pay the right man a good salary with board and room for himself and wife, if married. The opening promises permanency and fair earning for either a young or middle-aged man. Address 59, care of this office.

#### Wanted—A General Practitioner

Wanted—A General practitioner who is not inclined to do surgery, but will assist in major operations, to locate in a South Dakota town of 1,350 on the C. M. & St. Paul Railway, to work with a surgeon who owns a private hospital. Must be a good general man, must be a Catholic, and must be licensed in South Dakota. This is positively an A No. 1 location. Address 41, care of this office.

#### Physician Wanted

Excellent location in central eastern North Dakota now without a physician. Large territory of good agricultural district including several other towns. Two railroads with good passenger service contribute to practice. May move into vacated physician's office in connection with dentist if desired. Office furniture and x-ray machine here for physician's use. Nothing for sale. Address O. H. Hoffman, D.D.S., Hannaford, N. D.

#### Association with a Physician Wanted

A recent Rush graduate of Norwegian descent, who will complete his senior internship in a large Twin City Charity hospital, July 1, 1924, desires a position with a good future as assistant to a busy practitioner after that date. Personality agreeable; health excellent; and ability at least average. Protestant. Mason. Not afraid of hard work. Prefer position as assistant or an associate, but might also consider a general practice if the opening is favorable. Address 55, care of this office.

#### Small Minnesota Hospital for Sale

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.





### THE NEW ASBURY HOSPITAL AND NURSES' HOME

When Asbury Hospital of Minneapolis leased to the U. S. Government its fine hospital building for a Veterans' Hospital, a new building was planned to be used as a temporary hospital and a future nurses' home. The above picture is the architects' design of the new building now completed and occupied; and it is, indeed, a handsome structure,

inside and out, with a capacity of 125 hospital beds and abundant quarters for the nurses

The interior decoration is simple, plain, artistic, with a touch of color design that is exceedingly harmonious and pleasing.

The staff of the new hospital is not yet complete, but will be soon, and it will contain the names of many of the best medical men, general practitioners and specialists, in the city.

## Post Graduate Hospital and Medical School

2400 S. DEARBORN ST., CHICAGO, ILL.

-- OFFERS --

### SPECIAL COURSES

in all Branches.

CLINICAL COURSE FOR GENERAL PRACTITIONERS

### SPECIAL INSTRUCTION IN THE USE OF INSULIN

OPERATIVE SURGERY on Cadaver and Dogs

by Prof. W. J. Marvel, M. D.

### LABORATORY AND X-RAY TRAINING *for* PHYSICIANS AND TECHNICIANS

Prof. B. C. CUSHWAY, D. D. S., M. D. in charge of X-Ray Dept.

Graded Courses for those intending to specialize in

### EYE, EAR, NOSE AND THROAT

*SHORT COURSES FOR SPECIALISTS*

New and Enlarged Equipment for These Departments

Write for further information.

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 5

MARCH 1, 1924

Per Copy, 10c  
A Year, \$2.00

## SYMPOSIUM ON TUBERCULOSIS\*

BY THE STAFF OF THE PARKVIEW TUBERCULOSIS SANATORIUM OF MINNEAPOLIS

### IN TWO PARTS—PART I

WALTER E. LIST, M.D.

VIRGIL J. SCHWARTZ, M.D.

WALTER J. MARCLEY, M.D.

H. P. BACON, M.D.

KANO IKEDA, M.D.

C. A. MCKINLAY, M.D.

CHARLES B. WRIGHT, M.D.

R. W. MORSE, M.D.

THOMAS ZISKIN, M.D.

S. R. MAXEINER, M.D.

H. A. BURNS, M.D.

RICHARD R. CRANMER, M.D.

LEO G. RIGLER, M.D.

H. B. DORNBLASER, M.D.

L. H. CADY, M.D.

PAUL W. GIESSLER, M.D.

### PARKVIEW SANATORIUM

BY WALTER E. LIST, M.D.

Superintendent of the Minneapolis General Hospital

MINNEAPOLIS, MINNESOTA

The name "Hopewell Hospital" of Minneapolis, was changed to *Parkview Sanatorium* by action of the Board of Public Welfare in session May 8, 1923, in order to give a definite designation as to the kind of institution it is. A given name to a hospital, particularly a public institution, has something to do with favorable or unfavorable community reaction, but a high-grade of medical and nursing service or excellent care of the patient must prevail in the last analysis to win public confidence. Public confidence can be gained only through the medium of satisfied patients. And here you not only bring into play the administrative functions, but you rely on the personality of the hospital. I refer to the various divisions of the hospital that come

in contact with the patients,—the medical staff, the nursing school, the dental, handicraft, and dietetic departments. The personality of the hospital, as far as the patient is concerned, develops with the degree of effort put forth by the attending staff; in other words, a hospital will be as good as the attending medical staff will make it.

For the purpose of description, a hospital or sanatorium has a mental and physical existence. Mentally, I refer to the opinions, thought, and judgment of the medical and nursing service; co-operation with social service and health agencies of the community. Physically, I refer to the tile floors, marble wainscoting, heating, lighting, cleanliness, etc.

The most important division of the hospital refers to the medical service and at Parkview we give credit to Dr. J. A. Myers, the Chief of Staff, for his effort and his interest in securing the assistance of twenty-five doctors of the City of Minneapolis who are giving their services without salary.

\*Presented before the Hennepin County Medical Society, Minneapolis, Minnesota, October 3, 1923.



The Parkview Sanatorium staff is composed of the following members:

Dr. J. A. Myers, Chief of Service.  
 Dr. Walter J. Marcley, Consultant in Tuberculosis.  
 Dr. Henry L. Ulrich, Consultant in Medicine.  
 Dr. C. A. McKinlay )  
 Dr. Ruth Boynton )  
 Dr. H. A. Burns ) Associates  
 Dr. W. P. Shepard )  
 Dr. H. P. Bacon )  
 Dr. H. L. Cady )  
 Dr. Paul W. Giessler, Orthopedist.  
 Dr. R. W. Morse, Röntgenologist.  
 Dr. Leo Rigler, Röntgenologist.  
 Dr. Carl W. Waldron, Stomatologist and Otolaryngologist.  
 Dr. W. E. Camp, Ophthalmologist and Otolaryngologist.  
 Dr. V. J. Schwartz, Otolaryngologist.  
 Dr. Thomas Ziskin, Cardiologist.  
 Dr. C. M. Jackson, Anatomist.  
 Dr. L. A. Calkins, Gynecologist.  
 Dr. H. B. Dornblaser, Gynecologist.  
 Dr. J. C. Michael, Neurologist.  
 Dr. Kano Ikeda, Pathologist.  
 Dr. Stanley R. Maxeiner, Surgeon.  
 Dr. Richard R. Cranmer, Surgeon.  
 Dr. John Butler, Dermatologist.  
 Dr. W. P. Larson, Serologist.  
 Dr. C. B. Wright, Gastro-enterologist.  
 Dr. Walter J. Kremer, Urologist.  
 Dr. Dan Ziskin, Chief of the Dental Department.

Staff appointments to the Minneapolis General Hospital are recommended by the chiefs of the various services to the Executive Staff whose meetings are held the last Friday of each month at 1 P. M. At these meetings the possible appointments are discussed and confirmed. Then the secretary, who is the superintendent of the hospital, transmits this information to the Civil Service Commission.

The Executive Staff of the Minneapolis General Hospital acts as a Medical Board of Directors, discussing appointments and the medical policy of the institution. The staff therefore becomes a self-governing body, the Chief of each division assuming responsibility for the work done on his service.

In the tuberculosis division, or Parkview Sanatorium, the staff have decided upon the following procedure: The Associates to make rounds twice each week and to meet weekly on Friday at 5:30 P. M., for staff conference.

It is desired that complete routine examinations be made on every patient by the members of the various departments and the results to be noted on the patient's history. Consultation requests to be made to the special departments, as orthopedics and skin and other special departments as needed. The routine of the medical work is carried on by a Chief Resident, and at this time we are fortunate in having with us Dr. H. DeW. Lees, of Esmond, N. D., who has been engaged in private practice for twelve years and now expects to devote his entire time to the study of tuberculosis. Our house staff is composed of one Chief Resident, who receives a salary, one Senior Interne, and one Junior Interne. In December we shall have for four months the services of another resident, who expects to engage in special problems of tuberculosis.

Only the indefinite future of this institution prevents us from becoming enthusiastic about the possibilities of this situation, and we are confronted with this question, will the County Tuberculosis Sanatorium when its present building program is completed, sometime during the spring or early summer, be able to accommodate the hospitalization of all the tuberculosis cases in the community? This question can only be answered by actual experience.

The Minneapolis General Hospital wishes to express its gratitude to the Parkview Sanatorium Staff for the excellent service that is being rendered; and, in conclusion, all the doctors of the city of Minneapolis are invited to make the rounds with the visiting staff as often as they desire.

## TUBERCULOSIS OF THE LARYNX

By VIRGIL J. SCHWARTZ, M.D.

Associate Surgeon, Eye, Ear, Nose and Throat Division,  
 Minneapolis General Hospital  
 Assistant in Ophthalmology and Otolaryngology, University  
 of Minnesota

MINNEAPOLIS, MINNESOTA

It is an exceedingly difficult matter to contribute anything new to our stock of information concerning laryngeal phthisis. Indeed, for a long time there has been little or no change in our knowledge of the etiological factors, the pathological anatomy, the symptomatology, and the diagnostic points involved; only in the fields of prophylaxis and therapy have advances been made—some slight, it is true, but others of prime importance. The following paragraphs will give, as briefly as possible, our present views regarding

tuberculosis of the larynx and will emphasize some facts which are particularly noteworthy.

#### ETIOLOGY

With a post-war increase in the number of cases of pulmonary tuberculosis, we find a corresponding increase in the incidence and in the severity of laryngeal tuberculosis. The latter is almost always secondary to a pulmonary phthisis and occurs, roughly, in from one-third to one-sixth of such cases. Rarely a tuberculosis of the larynx may follow a similar condition in the nose or pharynx; occasionally, also, it may come from a tuberculous focus elsewhere, being transmitted by the blood or lymph stream. But for all practical purposes we may consider the laryngeal disease as being secondary always to a lung involvement.

Certain factors are important as predisposing to tuberculous invasion of the larynx. A pre-existent chronic catarrhal laryngitis, with local inflammation, cough, irritation, and the resulting fissures and defects in the epithelium, facilitates greatly the new infection. Maceration of these areas with tuberculous sputum contributes also to the preparation of the field.

The many minute creases and pockets in the laryngeal mucosa harbor bacteria, which are a sinister factor in the development of a secondary infection. Cisler and many others believe that an atrophic nasal mucosa predisposes to disease of the larynx. Occupation is an important factor. Max Brauch finds laryngeal tuberculosis most commonly in the manual workers who are economically fairly well-situated, metal workers, vegetable handlers, and mineral workers being especially predisposed because of the dust associated with each of these vocations. Furthermore, the occupational factor also explains why men are affected twice as often as women, and why the preferred ages are from twenty to forty years, the disease being rare in old age and in childhood. However, pregnant women are very susceptible, and, when attacked, have a serious, often a fatal, involvement.

Ferreri finds that indoor workers are more often affected than those in outdoor work. Teachers, jewelry workers, barbers, laundresses, and those in contact with animals who may transmit the infection (for example, butchers) are especially liable. Lastly, rubber workers are in constant danger because the powdered talcum; and the bits of wool, silk, and cotton used in rubber manufacture, when inhaled, are very irritant to the respiratory mucosa.

#### PATHOLOGICAL ANATOMY

Four more or less well-defined anatomical stages may be described. The earliest phase is that of subepithelial nodule formation. The epithelium is intact, though here and there it may be slightly thickened. The characteristic epithelioid and round-cell nodules are separated from the surrounding tissues by a leucocytic ring which may be partly deficient.

This condition soon passes into the stage of infiltration,—round-cell accumulation in the sub-mucous tissues. The nodules increase in size and number, and begin to undergo central caseation. There may also be wedge-shaped round-cell proliferations into the deeper tissues.

The beginning of ulceration is an important and serious occasion. Characteristically, we find shallow ulcers with a rough, irregular floor partly covered with thin, yellow-white secretion, having a serrated, mouse-bitten margin, and a pale surrounding tissue. Granulations are present at the margin and may increase to the size of papillomatous tumors. The writer recently saw a case wherein a surgeon in a distant city had advised the removal of an apparently recurring tonsil. On examination there was found a tuberculous ulcer of the left side of the pharynx, the anterior margin of the ulcer being on the posterior pillar. At this place there was a long vertical mass of pale granulations, somewhat resembling cryptic tonsil remnants; yet the whole was tuberculous tissue.

If, unfortunately, secondary infection sets in, perichondritis may follow. Conversely, it may be stated that perichondritis always is due to a secondary infection. This most often involves the arytenoids, less commonly the epiglottis, and rarely the thyroid or cricoid cartilages.

#### SYMPTOMS

Chief importance attaches to the earliest discoverable symptoms which have any diagnostic import. A slight, though definite, dysphonia, the feeling of a pungent taste, a sensation of dryness in the throat, and a difference in the tone or timbre of the voice—these four make early laryngeal tuberculosis strongly to be suspected.

Follows then a thick, toneless voice, which tires easily and gradually becomes hoarse, proceeding occasionally to a stage of actual aphonia. Dysphagia and odynophagia then may set in, due to ulceration of the epiglottis, the arytenoids, or the interarytenoid fold,—that is to say, of some portion of the upper margin of the larynx. Perichondritis may also give these symptoms.



Pain in the ear on the affected side,—rarely on both sides, if there is marked, bilateral laryngeal involvement,—is not uncommon. This is transmitted from the larynx by the superior laryngeal branch of the vagus, upward through the main trunk of the latter and along the ramus auricularis nervi vagi to the ear.

Dyspnea of marked degree may be brought about by edema, perichondritis, or infiltrative swelling.

Stress must here be laid on one significant fact: the most important structures for the closure of the larynx in deglutition are the false cords, not the epiglottis. If, therefore, these cords and the adjacent tissues become ulcerated, infiltrated, rigid, and distorted, complete closure of the glottis is impossible, so that aspiration pneumonia may set in.

It is doubtful if there is a more pitiable creature in the entire domain of medicine than one in whom these conditions have become far advanced. As Körner dramatically puts it, death approaches from three sides at once,—through starvation, through suffocation, and through aspiration pneumonia.

#### LARYNGOSCOPIC FINDINGS

The clinical manifestations of laryngeal tuberculosis are manifold, and may be dismissed briefly. Of great importance is the general rule that acute or chronic *catarrhal* conditions are usually symmetrical and bilateral, whereas *specific* diseases,—carcinoma, syphilis, and tuberculosis,—are either limited to one side or are asymmetrically distributed.

In the first stage, that of subepithelial nodule formation, a circumscribed redness, best noted on one vocal cord, constitutes an excellent early clue to diagnosis. Significant, also, are multiple follicular thickenings seen with the magnifying mirror. But these changes can be so rarely made out that they scarcely enter into consideration.

The stage of infiltration—that which we usually see earliest—is first manifested in the great majority of cases upon the posterior wall of the larynx. The interarytenoid fold is normally concave with reference to the lumen of the larynx. A chronic catarrh may make this wall straight or flat; but, when the fold is so thickened as to project into the laryngeal lumen and especially if the infiltration and the proliferation are irregular, asymmetric, pale, with conical, lumpy, pointed or papillomatous excrescences of a lead-gray or yellow-gray or a red-gray color,

a diagnosis of tuberculosis is entirely justified.

Less frequently does infiltration involve the vocal cords, still less the false cords, and, least of all, the arytenoids and the epiglottis.

Tuberculous ulcers are seen most often on the vocal cords and on the interarytenoid fold, and less often on the false cords, the arytenoids, and the epiglottis. They may be superficial or associated with a deep infiltrate, and have an irregular furrowed floor with mound-like, infiltrated, even papillomatous margins, as already described.

It must be remembered that tuberculosis involves with great preference the *posterior* half of the larynx, so that the epiglottis may not become involved for a long time, if at all. Severe cases, however, may present ulceration of the entire upper laryngeal ring.

Perichondritis, a serious and not infrequent complication, arises from a secondary infection and involves the arytenoids first because of their superficial, exposed position and because of the adjacent ulceration. It may then spread to the epiglottis, and, rarely, to the cricoid and the thyroid cartilages, with now and then involvement of the subglottic space.

The epiglottis may assume a turban-like form, or it may appear as a large, swollen, shapeless mass. Care must be taken not to mistake a massive infiltration for simple edema. The pain becomes intense, and, if there is much edema, there is danger of asphyxia.

#### DIAGNOSIS

The recognition of early symptoms and signs is of the utmost importance, of course. Very significant is a marked anemia of the laryngeal mucosa in the presence of a laryngeal catarrh, and associated with a definite weakness of the laryngeal muscles as evidenced by a toneless, easily-tired voice. We look for unilateral or asymmetrically reddened areas, in which minute nodules or erosions may be recognized. But the most reliable and most frequent early sign of laryngeal tuberculosis is, undoubtedly, the characteristic interarytenoid infiltration, with or without small, unilateral swellings of the vocal cords.

Care should be taken not to confound an infiltrative or toxic muscle involvement with a unilateral or a bilateral paresis or paralysis from another cause.

There is usually no trouble in differentiating between a tuberculous ulcer of the larynx and one which is due to syphilis. When there is some difficulty, the following facts should be borne in mind: a tuberculous ulcer is shallow

and is covered with a thin, serous whitish secretion, has irregular "mouse-bitten" edges, and is surrounded by a pale tissue of little inflammatory reaction. A luetic ulcer, on the contrary, is deep, is covered with a thick, greenish secretion, has round regular margins, and is surrounded by a congested tissue of marked inflammatory reaction. Haslinger names three conditions wherein there may be little or no reaction about a luetic lesion: when the ulcer is in scar tissue, when the patient is cachectic, and when the lues is congenital.

When, despite the above-mentioned guides and the general methods of detecting tuberculosis, the diagnosis is still uncertain, recourse should be had to biopsy. This will usually clear away all doubt as to the nature of the lesion.

#### PROGNOSIS

According to Brünings, in emaciated, progressive pulmonary cases with fever, the outlook is bad for both lung and larynx. In the catarrhal, afebrile type of chronic course, the prognosis is better. In cases of stationary, indurative pulmonary tuberculosis, the laryngeal prognosis is favorable. As Gregg says, the laryngeal prognosis varies almost directly with the patient's general condition. Closed lesions, that is, those which are not ulcerated, even though they are widespread, have a good prognosis; while those in which ulceration and necrosis have already set in are always in danger of secondary infection. The more fibrous the type of tuberculosis, the better the prognosis. The outlook is also better when there is considerable local reaction after treatment, as, for instance, with the cautery. Pregnancy usually aggravates greatly a laryngeal tuberculosis; in fact, the latter may not be suspected at all until made manifest in this way. For this and similar reasons, it is advised, wherever possible, to make repeated, routine laryngeal examinations of patients with pulmonary tuberculosis but without laryngeal symptoms. Only in this way can the patient be really protected against great suffering or a premature death.

Reynier gives an interesting classification of laryngeal lesions in progressive order of their gravity as to prognosis: first, vegetations or proliferations with or without ulceration of the posterior wall; second, ulceration of the vocal cords; third, infiltration of the arytenoid; fourth, infiltration of the epiglottis; fifth, ulceration of the lateral wall; and, sixth, rapid ulceration with infiltration of the arytenoids, epiglottis, lateral

walls, cords—in short, of the entire upper laryngeal ring.

#### TREATMENT

It would be difficult even to enumerate all of the methods and medications which have been used in the therapy of laryngeal tuberculosis. Their number is legion. Of course, it is true that much of the treatment must be symptomatic, and it therefore permits the employment of a multiplicity of therapeutic measures, according to each man's idea of what particular procedure best suits a given condition. Until a specific treatment is discovered, we must expect to bear this burden.

But we have a few measures, fortunately, which, if carefully and judiciously applied, are of such unquestioned value that the therapy of this malady has changed from a hopeless task into one which is often rewarded with success.

The general treatment must be administered with the idea always in mind that we have a patient who is afflicted, first of all, with pulmonary tuberculosis. Sanatorium hygiene is therefore important. Dry mountain air is better than the damp air of the seashore. A cool, not cold, temperature; so far as possible, continuously pleasant weather, not erratic extremes of climate; a moderate, regular wind; and plenty of sunshine, the latter being intensified in a high altitude—all these are important factors in the patient's environment.

The diet should be soft, bland, and pasty; gelatinous foods are often required. The abdominal position while eating may somewhat relieve a patient's dysphagia.

Finsen light baths daily have proved of benefit, the patient, stripped, lying prone before four arc lamps of twenty amperes each. Tuberculin is occasionally used, but not with altogether satisfactory results; the initial dose is from 0.1 to 0.5 mgm. of old tuberculin. "Krysolgan," a gold-canthalidin compound, has been recently developed and is given intravenously, the dose increasing from 0.025 gm. to 0.2 gm. The results have been encouraging. Some salts of the rare earths of the cerite or cerium group have been used recently, also by intravenous administration, but with questionable results. These are said to produce a transient mononucleosis and an increase in the red cell count; but the chief value of both these chemical procedures lies in their stimulus to connective-tissue formation, so that they really constitute irritant therapy.



Rarely a pregnancy will have to be terminated in its early months; if in the later months, Cæsarian section may be required.

All our measures, however, prove valueless unless we can obtain and enforce a *constant, absolute, and prolonged rest of the larynx*, forbidding any effort at speech or even at whispering. A few clinicians, like Leichsenring, have even gone so far as to section, or to inject with 80 per cent alcohol the recurrent laryngeal nerve of the same side, in order to insure absolute immobility of the vocal cord. To the writer it would seem that such heroic treatment is rarely justified. Nevertheless, the principle of local rest cannot be too greatly valued nor too carefully observed. It is the basis of the management of these cases.

Local treatment of a tuberculous larynx should be only such as will be well-tolerated by the patient, and should be administered only after noting how much tendency there is toward spontaneous healing.

Of the palliative methods in common use we may first consider, as does Brünings, those which are useful in alleviating pain in the superficial structures and tissues. Oily sprays and applications have found favor in many hands, being almost always preceded by an alkaline wash or a hydrogen-peroxide spray of the larynx to remove tenacious mucus. Menthol in oil—from 2 to 20 per cent—or the French preparation, Gomenol, (a few aromatic and weakly antiseptic substances in a liquid petrolatum base), have both been used to good advantage. A favorite method of instillation is by using a Yankauer dropper or a Jones autoinjector, whereby the patient is able to treat himself satisfactorily. In the latter there is a rubber tube, which is passed back through the nose and over the soft palate into the pharynx. The desired liquid is then forced through the tube and is so instilled into the larynx.

Insufflation of various powders has often been employed with considerable relief from pain. Especially is this true of that reliable preparation "orthoform," which is not only anesthetic but also at times of definite curative value. Anesthesin or apothessin may also be used in this way, or we may combine orthoform with iodoform and with compound stearate of zinc to form still another type of powder.

Freudenthal's mixture of menthol, formaldehyde, and orthoform in an emulsion of oil of sweet almonds and powdered acacia with water, has given good results in many cases. The

principal action here, of course, is that of the orthoform.

Creosote in glycerin has been used; even the familiar compound benzoin tincture in steaming water as an inhalant has been recommended by some, but others oppose its use as being irritant to the glottic mucosa.

When nothing else avails, and yet we must relieve dysphagia or some other local distress, cocain, with adrenalin, is occasionally employed. The habit-forming tendency must always be borne in mind.

Pain in the deeper structures is harder to combat. Bier's hyperemia has been employed for this purpose with some good effect, using an elastic collar around the lowest part of the neck for compression.

One of the most common and, indeed, most effective procedures is injection of the superior laryngeal nerve with 80 per cent alcohol or with novocain. The former gives relief for periods ranging from one to several months, and is quickly and easily done.

It may become necessary to section the superior laryngeal nerve of one side—some say of both sides, if necessary, but not at the same time. Some sensation is said to return after a few months, but the danger from aspiration pneumonia would seem a very real one. When both sides are equally involved, Feuchtinger uses only radium; he never cuts both nerves.

For dysphagia, nasal feeding is given through a tube or catheter. If these methods are also found inadequate, a gastrostomy may have to be done.

For threatened asphyxia, tracheotomy should be done immediately. In former years this procedure was used to give access to the larynx and trachea for direct treatment, but latterly its use has become restricted more and more to the relief of mechanical obstruction.

Of course, narcotics injected hypodermatically may have to be used. The indications for these are well known.

Thus far we have considered only methods for giving symptomatic relief. There are other measures, however, by which we may hope to effect a cure, other factors being favorable. Of these, let us consider first the endolaryngeal procedures.

The application of caustics is an old, and at times a very beneficial, mode of treatment. Lactic acid has been used in solutions of from 50 to 90 per cent with good effect. Formalin, up to 2 per cent, and formaldehyde in glycerin, have

been used similarly but less commonly. It should be remembered that these applications are effective only against secondary infection, that is, against superficial tissue involvement.

For this reason Brünings has recently devised a deep puncture with the galvanocautery needle. This is probably the best of all the endolaryngeal surgical methods at our command. Punctures of from one-half to one-and-one-half centimeters in depth are made into and around the diseased area. Each of these is effective for a radius of about a half centimeter from the puncture canal, so that we have here the double advantage of almost negligible damage to the surface epithelium combined with a far-reaching effect in the deep tissues, productive of marked local reaction with subsequent scar formation and encapsulation of the infiltrated or destroyed regions.

We might mention in passing the use of chaulmoogra oil in laryngeal tuberculosis. It is applied locally, usually in a 20 per cent solution, and is said to be detergent, anesthetic, and counterirritant. It is employed chiefly for the relief of dysphagia, and has been used with success by Lukens and others.

Another type of cautery is the flat galvanocautery needle, which, when used on ulcers or other superficial lesions, removes necrotic tissue and stimulates granulation.

When the lumen of the glottis is greatly obstructed or a circumscribed focus can be entirely removed, as, for instance, the epiglottis in dysphagia or a vocal cord in unilateral involvement, we extirpate the diseased tissue with snares and punches,—rarely, if ever, with a curette.

We are admonished that it is possible to force tubercle bacilli from the lesion into the lymphatics or the blood stream, producing thereby a miliary implantation or a generalization of the tuberculous process; however, this danger is more theoretical than real, for in practice we rarely find such a complication.

Dean recommends operation by suspension laryngoscopy. After removal of the tissue, it is advised to cauterize the wound surface with lactic acid.

Local irradiation with  $x$ -rays, the mercury-vapor lamp, and radium has been employed with varying results. Rickman gives a course of six  $x$ -rays treatments, each of from 20 to 30 per cent of the skin erythema dose, every two days. All these methods aim to produce a local inflammation to be followed by scar-tissue formation and encapsulation of the diseased area.

But by far the best of all the local non-surgical

methods is intralaryngeal, condensed sunlight treatment, which may be carried out by the patient himself with Verba's or some other apparatus. This heliotherapy has received extensive trial, particularly in this country, and has brought most excellent, often astonishing, results. A set of mirrors containing an alloy of aluminum, and magnesium are so mounted that by looking into an ordinary large mirror the patient is able, with a little practice, to direct the sun rays into his own larynx. The ultraviolet rays are utilized, while the heat rays are eliminated. The usual maximum dose is up to ten minutes. The exposure may cause marked local reaction—fulness and dryness of the larynx, with pain, burning, erythema and swelling, but these soon disappear. In a large percentage of cases, after a short time, some or all of the ulcers heal, the tuberculous swelling diminishes, the cough disappears, and the dysphagia may be greatly relieved. The literature contains numerous reports of remarkable cures in advanced cases.

We have only to mention the extralaryngeal surgical methods which used to be employed occasionally, but which are gradually losing their place in therapy. These methods have the common disadvantage of inviting wound infection with tubercle bacilli or with cocci.

Laryngofissure has been done, but the indications according to Brünings are so confusing that a suitable case is rare. He would permit it only in an afebrile patient of good general condition, in whom the lung condition is non-progressive, with but little sputum and a laryngeal disease so limited that it can be entirely removed at one time. Further, general and intralaryngeal treatment must have been tried over a long period and have been found insufficient.

Curative tracheotomy has given some good results, but interferes in a measure with cough and expectoration. It is most successful when done in a young, afebrile patient at a favorable time of the year so that he can be outside as much as possible. There may be marked involvement of the larynx, but there should not be extensive lung disease, and the general condition must be good.

Extirpation of the larynx, one side or both, is now rarely done.

At Parkview Hospital we have begun to do routine laryngoscopic examinations of all the patients. Of forty-six patients examined to date, we have found five with definite tuberculous laryngitis, three with interarytenoid thickening, and three more with a diffuse hyperemia of the



posterior part of the larynx. A further report will be made when the series is completed.

In conclusion, the writer wishes only to call attention once more to the three weapons which in his opinion form our greatest defense at present against laryngeal tuberculosis: absolute, prolonged rest of the larynx; the deep puncture with the electrocautery needle; and condensed, intralaryngeal sunlight. Judicious application of these methods should yield good results in suitable cases.

## THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

BY WALTER J. MARCLEY, M.D.

Consultant to the Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

The gradual, insidious onset of tuberculosis and the relapsing nature of this disease should be borne in mind constantly. A diagnosis is never made entirely upon one point of evidence. A thorough time-consuming investigation into the case is essential, in order to arrive at a definite conclusion. I have summarized the evidence briefly in the following twenty-one points:

1. History of tuberculous disease in a near relative of the patient should be seriously considered as an indication of possible low natural resistance in the individual under observation.

2. A painstaking inquiry into the history of the development of the present illness is essential.

3. In the diagnosis of active pulmonary tuberculosis constitutional symptoms are more important than physical signs, x-ray findings, laboratory findings, and evidence of special tests.

4. Cough is the most frequent early symptom. Even a slight cough, with or without expectoration, persisting over three or four weeks, requires a searching examination.

5. Malaise is important. It usually develops very gradually and insidiously, being attributed by the patient and his family to overwork, anxiety in business, overstudy, or to previous acute disease from which he has not fully recovered. "A rundown condition does not demand a tonic, but an examination."—Pottenger.

6. Instability of the nervous system, manifested by restlessness, irritability, sleeplessness, is frequently caused by the toxemia of early tuberculosis.

7. Gastro-intestinal disturbances are frequently early signs of tuberculous toxemia. Many

a patient consults a physician because of "stomach trouble," when a careful investigation reveals pulmonary tuberculosis, and proper treatment promptly removes all symptoms of which he complains.

8. Frequent and protracted "colds" are not insignificant, and their cause should be searched for.

9. Hoarseness, persisting or recurring, may be an early symptom of pulmonary tuberculosis.

10. Gradual loss in weight is a common early sign of this disease.

11. Pleurisy suggests, at once, tuberculosis. At least 80 per cent of the so-called idiopathic pleurisies are due to this disease.

12. Slight rise of afternoon or evening temperature is a common and extremely important symptom. One or two readings in the office are not sufficient. A careful record made every two hours for a week may reveal fever not otherwise detected.

13. An irritable heart with a pulse persisting between 90 and 100 merits careful consideration.

14. Hemoptysis is pathognomonic of pulmonary tuberculosis in at least 95 per cent of all cases. A patient who has coughed for two or three weeks and later expectorates a small quantity of clear bright blood must be considered as tuberculous, even without other evidence, unless some other cause for the hemorrhage can be positively and definitely established.

15. The presence of tubercle bacilli in the sputum is not an early sign of pulmonary disease, and negative reports from the laboratory are of no value in diagnosis except when many and frequent negative reports are received. A forty-eight-hour specimen may give positive evidence although a single expectoration may be negative.

16. Tuberculous pulmonary lesions that are demonstrable are usually apical. Basic lesions are usually not tuberculous.

17. The lagging of the apex or of the entire side, the narrowing of Krönig's isthmus, the tenseness of overlying muscle, the slight change in percussion note brought out by light percussion, and the slight changes in breath and voice sounds, with or without fine moist râles following cough, are the physical signs most commonly found. Turban taught many years ago that "apical catarrh" persisting is tuberculous. I believe this teaching has stood the test of time.

18. The x-ray furnishes valuable evidence, but is too often relied upon entirely to the exclusion of other evidence in making a diagnosis. The fluoroscopic examination gives us the move-

ment of the apices and the excursion of the diaphragm. The single flat plate is of little value. Stereoröntgenograms should be made in all cases, properly made, and interpreted by a physician skilled in this phase or röntgenology.

19. Tuberculin may furnish evidence of slight value. A high sensitiveness to tuberculin, I believe, offers a suggestion of existing disease.

20. Grave consideration should be given to the protracted convalescence from acute diseases, injuries, surgical operations,, pregnancy with premature delivery, or confinement at full term. Unless the patient comes back in proper time to the former state of physical well-being, investigation may elicit sufficient of the symptoms I have enumerated upon which to diagnose pulmonary tuberculosis.

21. So-called surgical tuberculosis (ischio-rectal abscess, glandular enlargement, bone involvement) is a local manifestation of a constitutional condition, and in the vast majority of cases there is also present a pulmonary lesion.

Tuberculosis is curable, but its curability depends upon its early detection; intelligent co-operation on the part of the patient with the physician; and proper treatment including medical supervision over a long period of time.

## SOME REMARKS ON RESONATORS

By H. P. BACON, M.D.

Associate Physician Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

I shall make no attempt to give a scientific paper this evening, but to try to recall to our minds certain laws of sounds and the principles of interpretation of such as are met with in physical diagnosis of diseases of the chest. These, often lost sight of in the routine of our work, when again brought to mind become interesting and intriguing. Quoting Norris and Landis: "For the ready comprehension of physical diagnosis a superficial knowledge of acoustics is necessary. The fact that all the phenomena met with cannot as yet be satisfactorily explained is due to the limitations of our knowledge and is not to be attributed to any mysterious manifestations. Acoustics has not developed into such a lofty, rich, and well-rounded form as has her sister science, optics." "A resonator is ordinarily an instrument for the determining of the pitch of sound." Any elastic body having an opening and containing a column of air is in fact a resonator. Pitch depends on volume of

air, its size, and the size of its opening. The smaller the object the higher the pitch, the smaller opening the lower the pitch.

Every resonator has its "fundamental" tone, the lowest note to which it vibrates as a whole. Now, when a vibrating body is struck there are produced other tones near the fundamental tone, which are known as other tones. In a resonator these are spoken of as forced on it. Such are the spoken voice sounds heard through the chest wall. Of the human body resonators the thorax is lowest in pitch, the ear highest; when either vibrates to a tone near its fundamental tone, there is a very disagreeable sensation produced as when a street-car goes around a curve at a good speed. The fundamental tone of the chest is below the lowest voice in pitch or we would suffer as the ear does on hearing the screech. All these aid in pointing out why we can obtain such valuable information in our clinical examination.

The four classical qualities of sounds are intensity, duration, quality, and pitch; and the greatest of these are quality and pitch. Quality of sound is that by which we recognize different articles from the sounds which emanate from them when struck. Thus if one strikes a tin pail or jug we are able to say that's a pail, etc., by the quality of its sound; its size may be guessed by the pitch. The pipe organ with its bellows, its pipes, and its reeds well illustrates the thorax as a resonator. Organ pipes are of two varieties, reed and flue, pitch being varied by the length of the pipes and the size of the openings. By varying the size of the openings at the distal end, the pitch is varied though the reed remains unchanged. Now the thorax the human resonator, responds and acts under the same principles. Perhaps here arises the question of the origin of breath sounds. Are they reed sounds modified by the thorax resonator or do they originate in the thorax itself? Dr. Bushnell maintains that all normal chest sounds originate and are produced by vibrations within the larynx, whereas Martini in the September *Archives of Internal Medicine*, denies it in toto. After seeing or, rather, hearing Dr. Bushnell demonstrate his point himself, every day for weeks, showing that by the complete relaxation of his larynx all breath sounds in the trachea and chest disappeared, I am inclined to repeat the remark of Dr. Westbrook to me on reporting that there were no bacilli in a given specimen: "Because you did not find them was no proof they were not there."



Dr. Bushnell limited himself to consideration of the more normal sounds, raising the question of whether, for instance, in a cavity there were not adventitious sounds originating in the cavity itself. The thorax, a resonator, responds best to these tones (overtones) which are nearest its fundamental tone, thus: (1) the male chest being the larger responds best to the lower and the heavier tones; while (2) a woman's chest or a child's responds to those of higher pitch. By the same token the whisper is much better transmitted in the child, being of higher pitch, and in less degree in a woman's chest. It becomes, therefore, in the adult chest a much more valuable measure of pathology than the more easily transmitted voice sound, except of course the lower reaches of the thorax, where the transmission of the whisper does not normally reach. It, therefore, makes it wise to use those sounds less easily transmitted in making examinations. A tympanitic note is musical, that is, it is produced by rhythmic vibrations, ordinarily by an elastic membrane stretched over a column of air vibrating as a whole, in the lung, as over an accumulation of fluid when the pressure of the fluid causes stretching of the overlying membranes by the crowding of the retained air against them at the same time causing a relaxation of the fibrous structure of the lung permitting it to vibrate as a whole. On the other hand, a metallic quality is given by unrhythmic vibrations as when sounds are reflected from the walls of a smooth walled cavity and interfered with by tissues of varying densities, giving the peculiar quality to sound from a pulmonary cavity. While the thorax as a resonator responds to these laws and has a fundamental tone, it has also a specific reaction to vibrations such that a part has the same pitch and tone as the whole. Thus, the ribs slanting downward disperse the effect and vibration of a blow, the articulations with the cartilages of the sternum and the spine, of different densities and response to vibrations also dissipate the effect of a blow; further, the bony parts differ in thickness, size, and density, thus limiting and diffusing vibrations, lobes of the lungs, septa of lobules, structure of parts differing again as to size, density, and physical characteristics, do not carry fundamental tones of other sizes and densities, and therefore can respond only to that of the whole, so that the specific qualities of the tones of the lungs are produced by the various planes and directions of fibrous planes producing an effect that a part has the same response as the whole.

This principle of the diffusion of sound vibrations explains why the voice and breath sound are diminished or stopped when reaching a fluid in the pleural cavity because the sound vibration originating in the normal lung tissue meets the denser medium of the fluid, although sound is better transmitted through the fluid than the air cells, and, on the other hand, if the sound originate in a consolidated lung behind the fluid the vibration on meeting the fluid being of similar density will be carried on increased sound.

Normal resonance is the response to vibrations of the thorax so constructed, and differs from tympany as a weighted piano string lowers the pitch, or the placing of the finger on the violin piano string by the player. Now, the qualities of sounds with which we are commonly concerned in interpreting breath and voice sounds are vesicular, bronchovesicular, and vesicular-broncho, if you like, bronchial, amphoric, cavernous, bronchophony, pectoriloquy, egophony.

The vesicular murmur is the fundamental tone of the chest, is the normal breath sound, and denoted as the normal breath sound of the average man. Its vesicular quality is a reed sound produced in a resonator. Bronchial is as though the insulation was removed from between the ear and the sound at some local point. Forced breathing has bronchial quality. Bronchial breathing has entire loss of vesicular murmur with distinct pause between inspiration and expiration, causes increased fibrosis, making a diminished covering of air cells, also it is said to act as telephone wires. "Bronchovesicular" is the characteristic breath sound of the tuberculous, perhaps the most misinterpreted and abused word in medical parlance and the one word in chest diagnosis which should be used with the most accuracy and discrimination. In the normal chest the reed sound, which is the breath sound, passes through a varying mass of surrounding air cells, acting as an insulation and modifying the sound as conducted and causing the vibration of the whole and producing the fundamental tone always lowest in pitch. When tuberculous infection comes there begins the proliferation of the fibrous cells, not in a solid massive form, but here and there as it were mixing islands of this pathological fibrous tissue with the normal air-cell formation characteristic of no other disease of the lung except perhaps pneumoconiosis. This mixture of the normal tissue and fibrous bring about a characteristic change in the conduction of the vibra-

tion, preventing the normal vibration as a whole, and brings about a raise in pitch or rather a mixture of pitch, and the normal vesicular murmur with its low pitch of the fundamental tone carries with it a tone of different quality. We hear the murmuring of the pines and hemlocks of classical description no longer alone. It cannot be learned by note or word description, but by the same route we learn the quality of the sound and recognize a piano key is struck or a bow drawn over a violin string or the sound in the pail made by the milkmaid. When cavitation takes place there is more or less immunity reaction making a fibrous wall about the cavity, usually smooth internally, and the high-pitched amphoric breath sound occurs with its metallic quality, with no pause between inspiration and expiration. The increased voice conduction gives pectoriloquy. But if the fibrous wall is thin the inside being necrotic, consequently not smooth, the pitch becomes lower, and the metallic quality is lost and the sound becomes cavernous. It was once stated that cavity formation was an immunity reaction, but this is not true, and the fibrosis which may take place about it is a measure of immunity reaction, and thus the different quality of the sounds in amphor—cavernous may have a prognostic value. As to size of cavity, to recognize the sounds of cavitation at all means a large cavity.

On the clinician depends the final disposition of the patient's case. Perhaps it is true that you cannot diagnose tuberculosis by the stethoscope alone; nevertheless the one concrete thing, the foundation wall on which he must build his diagnosis, is the physical examination,—what he himself sees, hears, and feels, and his interpretation of it. The history may have been learned by rote, and incidents of vital import may or may not be truthfully reported. The röntgenologist's report depends on the accuracy, assiduity, and carefullness of his technician. No clinician should make his final diagnosis without seeing the films himself, as well as having the Röntgen report. The laboratory report is open to the same loopholes as the  $x$ -ray report, though one must admit that there is an irreducible minimum of laboratory equipment, such as a teaspoon, a kerosene lamp, and a little vinegar. To see a master of the technique of physical diagnosis work up a case is to be impressed with its important place in diagnosis and to make one ambitious to bring one's skill to the highest of his capacity.

## THE TUBERCULOSIS SANATORIUM AND ITS DIAGNOSTIC LABORATORIES

By KANO IKEDA, M.D.

Pathologist and Director of Laboratories of the Minneapolis General Hospital

MINNEAPOLIS, MINNESOTA

The tuberculosis sanatorium as it is maintained to-day by the state, the county, or the municipality is an institution established, primarily, as a public health measure. Its principal aim is twofold: first, to protect the health of the community by segregating as many of the tuberculous as can be accommodated, and, second, to treat the unfortunate victim according to modern scientific methods under the personal supervision of specially trained medical men. In this, tuberculosis sanatoria throughout the state of Minnesota have found a large measure of success.

On the other hand, an equally important phase of sanatorium practice,—namely, a maintenance of adequate diagnostic facilities, is apparently being neglected or deemed of secondary consideration under the present arrangement. The reason is obvious, the high cost of maintaining well-equipped diagnostic laboratories and personnel is far out of proportion to the limited demand of a small sanatorium. The result is, nevertheless, lamentable both from the standpoint of the patient and from that of the scientific practice of medicine. In a number of instances a positive clinical history and the sputum, supplemented by a hurried physical examination of the chest by the family physician, constitute the diagnosis. Suggestive history and physical findings, with or without a positive Röntgen report or the sputum or even a combination of unexplainable symptoms including perhaps such common earmarks of tuberculosis as cough, night sweats, and increased afternoon temperature, may be accepted as the diagnosis. No accurate and thorough physical examination, no reliable Röntgen study, and no additional routine laboratory investigation may often be available.

Not long ago I had the pleasure of visiting a small sanatorium of about 30 beds. Its natural surroundings, its home-like atmosphere, and its general personnel made it an ideal retreat for the tuberculous. Clinical records were beautifully kept, including laboratory data, which consist of a monthly sputum report from the State Board of Health. During a hurried tour of the various wards I was able to observe one



or two cardiacs, a diabetic, and an orthopedic case, who in all physical appearances required special diagnostic and therapeutic measures.

To my utter disappointment and surprise there was no room, however barren it might be, which might be called a clinical laboratory. Of course there was no Röntgen equipment.

Here, then, is a tuberculosis sanatorium, ideal in all its outward appearances and doubtless representing a public health policy of the State, which, nevertheless, lacks a large part of modern scientific means of diagnosis and treatment.

A short time ago a case was admitted to the Parkview Sanatorium with a diagnosis of chronic advanced pulmonary tuberculosis, largely upon the history and the Röntgen diagnosis with repeatedly negative sputum. He soon developed a deep jaundice, enlarged and hard, nodular liver, and ascites. He was transferred to the General Hospital and there died a short time later. A post-mortem revealed a chronic healed fibroid pulmonary tuberculosis, and a large ulcerating carcinoma on the lesser curvature of the stomach with massive metastasis into the liver. Was he primarily a sanatorium case? Should he not have been studied more thoroughly from clinical and laboratory standpoints, especially in view of the suggestive gastro-intestinal symptoms dating back as early as 1918?

Unfortunately, the Parkview Sanatorium, as an independent institution, was not then equipped to do even a simple routine gastric analysis. Nor was there a consulting gastroenterologist on the visiting staff.

Another case developed cardiac symptoms including dyspnea, anasarca, and cyanosis, for which such laboratory investigations as are routinely done for cases of this nature, could not be carried out. He died a cardiac death. Post-mortem examination revealed a hypertrophy and dilatation of the right ventricle and a resultant picture of generalized chronic passive congestion of the visceral organs, as well as an advanced nodular pulmonary tuberculosis. Doubtless the right heart failure was a sequence of the chronic pulmonary condition, but the fact remains that the only laboratory data recorded were repeatedly positive sputum and what appeared from a single routine urinalysis. No further data, such as the blood count, urine and blood chemistry, etc., were available.

The value of the post-mortem examination, as well as the laboratory investigation, cannot be

overemphasized. An appreciable number of deaths among the tuberculous may wholly or partly be due to some independent terminal or co-existing conditions which the autopsy alone must reveal, especially in the absence of thorough pre-mortem diagnostic attempts.

At the Parkview Sanatorium, only a casual investigation has brought out the fact that more than 10 per cent of its 125 patients are suffering from conditions entirely independent of tuberculosis which require special treatment. These include five cases of cardiac disease, three of focal infection and sinusitis, two of nervous and mental derangement, one of diabetes, one of gastro-intestinal trouble, one at least of endocrine disturbance, not to mention several luetic, dental and surgical tuberculosis cases. Imperativeness of laboratory investigation in these conditions needs no comment.

There are some 17 tuberculosis sanatoria in the state of Minnesota, including one private, one state, one municipal and 14 county institutions, of which three have a capacity of 200 beds or more; one, 125; and 13, between 25 and 55.

A simple survey of the diagnostic facilities of these institutions was made and the result tabulated. For obvious reasons the private sanatorium and the Parkview are omitted in the following study.

Of the remaining 15, 12 are available for this study at the present time; three with more than 200 beds and nine less than 55.

The data obtained include the number of beds, number of resident physicians, attending physicians, and active consultants in tuberculosis, in medicine, in surgery, in röntgenology and in pathology; clinical laboratory, laboratory technician; extent of routine laboratory work and of special examinations, if any; Röntgen equipment and technician; facilities for diagnosis of tuberculosis and of other diseases and existence of complicating or concurrent disease among the patients.

The three large sanatoria appear to be fairly well equipped and organized for routine diagnosis and treatment of conditions other than and as well as tuberculosis. None maintains facilities for advanced research work or personnel sufficiently strong for such an endeavor at the present time.

One of these three employs only two attending men and no consultant, another six consultants including two in tuberculosis, one each in

medicine, in surgery and in röntgenology; a third, four residents and one consultant in each of the specialities mentioned—by far the best organized from the standpoint of diagnostic personnel, and yet its superintendent frankly states that the facilities are only “practically” sufficient for diagnosis of tuberculosis and not for complications.

Of the nine small sanatoria eight employ only one physician as medical director and attending physician, one employs two. One institution employs two surgical consultants while another a consultant in tuberculosis, seven others, or 77%, list no active consultant. Five, or 55%, maintain some sort of clinical laboratory while none employ a laboratory technician. Six are equipped to do routine sputum examination, eight routine urine and seven routine blood whenever indicated. None are equipped for any bacteriologic, serologic or chemical work. Three, or 33%, enjoy an *x*-ray equipment, but none employ a technician. Three consider their facilities adequate for tuberculosis work only, while the remaining six, or 66%, consider them inadequate even for diagnosis of tuberculosis. One claims its equipment sufficient or as good as any general hospital for diagnosis of other conditions than tuberculosis, while eight, or 90%, admit inability to properly care for non-tuberculous disease entities. All admit the presence of a varying number of patients, suffering from some important complications or concurrent disease.

A rather superficial observation upon diagnostic facilities of the 15 sanatoria scattered throughout the state has been made without considering in any way the already recognized ability of the physicians engaged in this work or the individual circumstances surrounding these institutions. This has been done not in the spirit of criticism or fault-finding but with a desire for the betterment of this noble enterprise from another and heretofore apparently not emphasized angle, for the sake of the patient primarily and for the sake of better medical diagnosis and record.

#### CONCLUSION

The majority of the small county sanatoria lack adequate routine diagnostic facilities and personnel. This is primarily due to the small capacity of the institution and its limited demand which is entirely out of proportion to the economic burden of maintenance. Superintend-

ents are cognizant of this fact and are endeavoring to overcome this limitation. To them and others the following suggestions are offered:

1st: Affiliate with a local or nearby clinic or diagnostic laboratory and make maximum use of these facilities.

2nd: Organize a visiting consulting staff which includes, if possible, every specialty in medicine. This is a practical postgraduate work for busy country practitioners.

3rd: Increase the minimum capacity of each existing sanatorium to 100 beds, which makes it economically feasible to maintain properly equipped diagnostic laboratories and necessary personnel. No additional sanatorium is to be constructed until this is accomplished.

The Parkview Sanatorium with its fully organized active consulting staff and diagnostic facilities stands as an example of what is conceived to be an ideal tuberculosis sanatorium.

### CERTAIN ASPECTS OF THE DIFFERENTIAL DIAGNOSIS OF HYPERTHYROIDISM AND PULMONARY TUBERCULOSIS

By C. A. MCKINLAY, M.D.

Consultant in Thyroid Disorders, Lymanhurst School and Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

It is not an unusual observation that the symptoms of weakness, fatigue, palpitation, tachycardia, and nervousness are common to both early pulmonary tuberculosis and hyperthyroidism. In addition, slight enlargement of the thyroid gland has been mentioned by many observers including Turban,<sup>1</sup> Stanton,<sup>2</sup> Strouse,<sup>3</sup> Tice,<sup>4</sup> Fishberg,<sup>5</sup> Pottenger,<sup>6</sup> and others. It is not remarkable, then, that in a certain group of cases of early pulmonary tuberculosis with minimal physical findings, and also in other cases after apparent arrest of the disease, the diagnosis is sometimes confused with hyperthyroidism. As Jennings<sup>7</sup> points out, certain cases of mild toxic goiter have a close resemblance to incipient pulmonary tuberculosis and may require a very close analysis of all the clinical and laboratory findings.

The symptoms above mentioned are considered by certain observers as expressions of increased functional activity of the thyroid. Janowski<sup>8</sup> found symptoms suggesting exophthalmic goiter in 17 per cent of 3,000 tuberculous patients and apparently considered that they had



hyperfunctioning thyroids. Pottenger<sup>9</sup> believes that hyperactivity often occurs in the presence of the toxemia of early pulmonary tuberculosis, as well as the toxemia of other infections. On the other hand, clinical observation, as mentioned by Courland,<sup>10</sup> indicates that patients with simple goiter, Graves' disease, and myxedema are tuberculous only exceptionally. Webb<sup>11</sup> quotes Plummer as stating that, according to his observation, pulmonary tuberculosis was much less common in cases with hyperthyroidism than it was in the general public. Webb concludes that the thyroid gland appears to enlarge in early experimental tuberculosis in guinea-pigs, as well as in certain forms of human tuberculosis, and to atrophy in late stages. Such enlargement is considered as a phase in the marshalling of the body's defensive forces against the invading disease and as a response to the demand for increased function.

It is a question of theoretical interest whether, in the toxemia of pulmonary tuberculosis, as well as that of other infections, there may be altered thyroid function, which is possibly only a phase in the body's reactive powers. Nor can discussion be included of so-called dysthyroidism in which symptoms of both increased and diminished function appear. It is a question of direct clinical importance, on account of treatment, whether an actual Graves' disease is the explanation of the symptoms mentioned and can be recognized as a distinct entity. For instance, one recent observer, Vis,<sup>12</sup> explains that confusing symptoms in certain cases with pulmonary tuberculosis are due to the intercurrent or subsequent development of Graves' disease. Apparently the criteria which are more and more being recognized as characteristic of Graves' disease when applied to many of this group of cases are negative. Such criteria follow recognition of the fact that the thyroid gland controls the rate of energy exchange of the body, which, when altered, gives definite clinical and laboratory evidence and which is probably the most fundamental symptom of hyperthyroidism. With increased heat production the patient must have more food, air, and water. Thus it is surprising that the study of hyperthyroid patients often reveals, in addition to other less characteristic symptoms, increased food-intake but no weight gain and often weight loss. This is quite characteristic in the absence, chiefly, of diabetes mellitus, infections with fever of 100° or over, and a few other conditions, such as leukemia and sometimes pernicious anemia, which are easily differ-

entiated from hyperthyroidism. Less often the weight loss may occur in crisis and be followed by weight gain. The increased heat production and dissipation is also evidenced by the continuously moist, warm skin and muscle tremors. More conclusive is the determination of the basal metabolism.

While there is some difference of opinion concerning the heat production in pulmonary tuberculosis, few, if any, observers report that it is constantly increased. McCann and Barr<sup>13</sup> conclude that the basal metabolism of tuberculous patients may be normal or very slightly above normal standards, but in patients with marked emaciation the trend may be below the average normal standards; however, with fever of 100° and above, appreciable increases are found. It should be mentioned that diagnostic difficulties are minimal in the advanced cases with moderate or high fever and that fever of 100° and above is exceptional in Graves' disease.

In fifteen afebrile cases of pulmonary tuberculosis we have observed, the basal metabolism was essentially within normal limits in all and varied from minus 8 to plus 11 per cent. This group included two arrested cases in which the persistence of tachycardia and nervousness with thyroid enlargement suggested hyperthyroidism. Careful study of the patients' symptoms and signs with special emphasis upon the symptoms of increased heat production pointed to the same conclusion as the basal metabolism determination. Fever may be almost entirely absent in the presence of a persistently rapid pulse in hyperthyroidism; much less often will the tuberculous patient run a continuously rapid pulse rate in the absence of fever. It would appear that the weakness, palpitation, and tachycardia, which are often noted in arrested cases of pulmonary tuberculosis and as a very early sign of disease, are not often associated with any measurable hyperthyroidism. Diagnosis of Graves' disease, even mild, without definite evidence at least in some stage of disease of increased heat production would appear to be untenable. A definite increase in heat production when found is evidence of the existence of Graves' disease, with the exception of a few other pathological conditions which are easily differentiated, and speaks against incipient or arrested pulmonary tuberculosis. Clinically such increase in heat production is best attested to by weight loss in the presence of increased food intake.

## CONCLUSIONS

1. The thyroid enlargement frequently seen in the early cases of pulmonary tuberculosis appears to be only a phase in the body's reaction to invading disease.

2. Graves' disease was not found in any of the tuberculous cases studied.

3. Valuable aid in the differentiation of Graves' disease and incipient pulmonary tuberculosis may be gained by study of heat production of the body.

(Second part will appear in our next issue.)

## REFERENCES

1. Turban: The Diagnosis of Tuberculosis of the Lung. (Trans. Morland), London, 1905.
2. Stanton: Trans. Nat. Tuberc. Assn., 1905.
3. Strouse: Med. Clin. of Chicago, January, 1917.
4. Tice, F.: Pract. of Med., 1921, 2, 396.
5. Fishberg, M.: Pulmonary Tuberculosis, p. 334.
6. Pottenger, F. W.: Clinical Tuberculosis, 1, 194.
7. Jennings, C. G.: Jour. Am. Climat. & Clin. Assn., Philadelphia, 1914, xxx, 133-139.
8. Janowski, W.: Abst. Jour. of the A. M. A., 76:1047.
9. Pottenger, F. W.: Loc. Cit.
10. Courland E.: Presse. Med. (Par.), 1922, 30, 992.
11. Webb, G. B., Gilbert, G. B., and Rycter C. T.: Am. Rev. of Tuberc., 3:266, May, 1921.
12. Vis, W. R.: Am. Rev. of Tuberc., 7:186, May 1923.
13. McCann, W. S., and Barr, D. P.: Arch. Int. Med., 26:663, December, 1920.

## THE CARE OF THE INDIGENT TUBERCULOUS OF A CITY, WITH PARTICULAR REFERENCE TO MINNEAPOLIS\*

By J. A. MYERS, PH.D., M.D.

Chief of the Tuberculosis Service of Hopewell Hospital (Now Parkview) Assistant Professor of Preventive Medicine and Public Health, University of Minnesota

MINNEAPOLIS, MINNESOTA

It is said frequently that we always have the poor with us. It is equally true that we always have the tuberculous with us and that the incidence of tuberculosis is usually a little greater among the poor than among the independent classes of people; therefore the treatment of the indigent tuberculous becomes a problem of no small moment in every large city of our country.

The fact that an individual is poor does not mean necessarily that he has been a failure in life. Some unfortunate financial circumstance may have robbed him of his savings, or an unfortunate health condition may have destroyed his earning capacity. Among the poor are found many very intelligent and courteous people. There are others who, because of their ancestry or past environment, are less intelligent and sometimes apparently unappreciative. Among these poor people we find the sense of pain is just as acute, suffering is just as intense, and help and kindness are just as much appreciated as among the well-to-do classes; therefore these people should be treated with the same respect and with the same modern and approved methods as other classes are treated.

The problem of the indigent tuberculous of a city resolves itself into several important phases, such as housing, feeding, education, and recreation, nursing care and medical care.

*Housing.*—With a splendid county sanatorium near our city, and a large state sanatorium where indigent patients may receive free treatment, and a municipal school for tuberculous children, one is apt, on first thought, to conclude that there should be no demand for more beds. However, on investigation one finds that our county sanatorium is filled and has a waiting list of nearly two hundred names, and our state sanatorium is filled and also has a waiting list. On further investigation one finds that we already have a municipal sanatorium (Hopewell), the tuberculosis department of the Minneapolis General Hospital now caring for 130 patients. This institution also has a long waiting list. It is to this last named institution that I wish to call especial attention. It is obvious that the name "Hopewell" does not add much of an optimistic nature to the institution. The site of the institution is very satisfactory, and the building itself, although not ideal, with little alteration, can be converted into one highly satisfactory for the treatment of tuberculosis.

Not long ago it was the fairly general opinion of the medical profession that fresh air is the most important factor in the treatment of tuberculosis. Physicians wanted their patients to sleep on open porches or in tents. Nearly all advised change of climate to high altitudes and lots of sunshine. Recent careful observations have proved that the open air and climatic changes are of very little importance, and he who

\*Presented before the medical Staff of Hopewell Hospital, Minneapolis, May 1, 1923.



advises them to-day at the expense of more important phases of the treatment is regarded as an "old timer." Physiologists have shown, moreover, that there is a sufficient amount of air in most rooms if it is kept circulating properly. Therefore a well-ventilated room or ward meets all requirements in this respect for the treatment of the tuberculous patient. The Hopewell Hospital is splendidly equipped with windows so that the question of ventilation may be dismissed with the statement that it is quite sufficient.

The large ward is unsatisfactory for the treatment of tuberculous patients. In such wards there is usually a wide range in the ages of patients, for example, from young girls of the ages of 16 to 20 years, to women of 50 to 65 years. The conversation of the younger individuals often seems frivolous and a bit irritating to the more mature ones, while the conversation and advice of the latter group is often regarded as a bit old fashioned by the former group. Then there is the patient who is acutely ill who should not be disturbed by any conversation, and, on the other hand, the cough and numerous complaints of this patient should not be allowed to disturb the other patients. Victrola selections which may be very pleasant and soothing to a few individuals may be extremely exciting or depressing to others in the large ward who are forced to hear them. Laryngeal patients who should be on absolute silence find silence practically impossible in the large ward where others are talking. Tuberculous patients should remain in the hospital for a long time; and in a large ward where there are so many variations in mental development, different moral codes, etc., there will develop, sooner or later, considerable quarreling among the patients. This is always bad, as it greatly excites and prevents improvement, not only of those who are directly involved, but also of all who are compelled to hear. I have seen temperatures become elevated as much as one or two degrees, and the patient not only fail to gain, but actually lose weight, following a quarrel. Where such quarreling exists it necessitates a great deal of moving of the patients, not only to various parts of the same ward, but also to other wards. Such shifting of patients is bad and keeps the whole patient body in a state of turmoil, which makes it impossible to obtain good results from the treatment.

In the small ward, preferably of four beds, and not to exceed six beds, patients may be arranged in congenial groups, and most of the un-

pleasantness and factors which greatly interfere with proper treatment may be eliminated. In the Hopewell Hospital there are six wards of twelve beds each. These are far from satisfactory, but the ventilation and heating facilities are so arranged that one or two inexpensive partitions placed in each ward would at once convert them into highly satisfactory wards for the treatment of tuberculous patients.

*Feeding.*—In most institutions for the tuberculous there is more or less complaint about the food. This is due, in part, to the fact that many tuberculous patients have gastro-intestinal disturbances and are unable to enjoy any kind of food, but too often complaints on the part of the patients are justified. There is not enough variety, foods are poorly prepared, some ambulant patients are allowed to work with foods, they are served cold, etc. It must never be forgotten that good food is the second factor in order of importance in the treatment of tuberculosis, and that he who is unable to eat properly cannot be restored to health. I know of nothing which so increases the morale of a group of tuberculous patients and makes them enthusiastic supporters for an institution as good food properly prepared and served. The physician who hopes to succeed in the treatment of tuberculosis must insist that the causes for complaints regarding food be brought to an irreducible minimum.

*Education and recreation.*—The majority of tuberculous patients after a few days or weeks in the sanatorium show a marked reduction or complete loss of symptoms. Their weight increases and their "pep" returns. They feel well, yet their tuberculous lesions require months and, in some cases, even years for satisfactory healing. Often it is difficult to convince a patient that he has not recovered when he says he feels "perfectly well." We know the results obtained from the treatment of tuberculosis depend largely upon the extent of the disease and the length of time we are able to keep patients on the treatment. The proper provision for education and recreation often will keep patients in an institution for months after they would have left under less pleasant conditions.

A patient's library is indispensable in a first-class institution. This should contain many books written for patients on the subject of tuberculosis. In addition there should be books on numerous other subjects and especially those full of wit and humor. Various periodicals should be available for the cosmopolitan in-

terests represented in a sanatorium for the tuberculous.

Music contributes one of the very finest forms of entertainment and recreation. This may be provided, in part, by victrolas which are always available, and by frequent musical entertainments by musical societies and clubs. If the proper appeal is made there are enough philanthropically endowed musicians in Minneapolis to provide the Hopewell Hospital with musical entertainment of the kind and frequency the patients request.

In a number of places the public-spirited citizens have donated sums sufficient to install excellent radios in sanatoria and hospitals. Our own county sanatorium at Glen Lake recently received more than was requested from humanitarian citizens of the county for a radio outfit. There can be obtained, no doubt, a sufficient sum of money for radio equipment for the 130 patients at Hopewell if the proper appeal be made.

The motion-picture film, in addition to its strong entertainment features, has become a powerful educational agency in the world. This should be used at Hopewell in the future even more extensively than it has been used in the past.

Occupational therapy is a godsend to any sanatorium for the tuberculous. By its proper use many idle hours are converted into profitable hours from the standpoint of production of useful articles and the betterment of the patients' health and mental attitude. Occupational therapy is well provided for at Hopewell.

In short, the sanatorium should be made so attractive to patients that they really enjoy life and are willing to remain as long as treatment is necessary.

*Nursing care.*—There is no one who is in more intimate contact with the patients and has a greater opportunity to influence their attitude toward the treatment than the nurse. She must insist upon discipline, but at the same time she must be sympathetic and kind. I have seen many patients not only fail to improve, but actually decline in health because of unkind and unsympathetic treatment of nurses. On the other hand I have seen many nurses who enjoyed a much greater respect and confidence of the patients than the doctors of these same institutions enjoyed. Such nurses have few or no disciplinary problems, their patients are always happy and for the most part do splendidly on sanatorium treatment. One reason some nurses are

not successful in sanatorium work is that they do not understand thoroughly the nature of the disease and the psychology of the tuberculous patient. Many of the patients look forward to a life of invalidism, while others have hope and the opportunity of becoming well, but only after a very much prolonged course of treatment. They have had to give up, at least, temporarily, their life-work, their homes, and all for which they had prepared and toward which they had striven with great anticipation. When admitted to the sanatorium many are discouraged and sensitive and have a bad outlook upon life. However, there is no group of people in the world who are more susceptible and responsive to sympathy and kindness than tuberculous patients. Nurses who have recovered from tuberculosis are usually very successful in sanatorium work because they know the psychology of the tuberculous patient.

The number of nurses required in a given sanatorium depends somewhat upon the nature of the patients admitted to the institution. If only early cases are admitted the minimum number of nurses allowed by the American Sanatorium Association will suffice. On the other hand if there is a preponderance of advanced cases in an institution a larger number of nurses is required. Such institutions should provide one nurse for every six or seven patients.

*Medical care.*—In every sanatorium there should be one or more physicians (depending upon the size of the institution) devoting their entire time to the institution. They can become acquainted with the details of every case, and are thus better able to direct the work of internes, and arrange the cases so as to make the time spent by the consultants and visiting staff of physicians most profitable for all concerned. At Hopewell there is provision for one resident physician and two internes. The inadequacy of such a staff would be most outstanding if it were not for the fact that a staff of visiting physicians is available.

The Visiting Staff, now organized, consists of one consultant in general tuberculosis, one consultant in general medicine, six associate attending physicians in general tuberculosis, one röntgenologist, one consultant in each of the following specialties: dermatology, cardiology, stomatology, ophthalmology and otolaryngology, serology, chest surgery, general surgery, orthopedics, gastro-enterology, pathology, urology, anatomy, and two consultants in gynecology.

Each of the associate attending physicians



makes at least two visits to the hospital a week. The patients are divided into groups so that each physician is responsible for a group of approximately twenty-two patients. Every two months the physicians rotate. This makes it possible for each physician to cover the entire hospital in a year.

Sanatorium patients look forward with great anticipation to their examinations. They are interested to know whether they have made any improvement. In most institutions the interval between examinations varies from one to three months. Three months is too long. Certainly not more than six weeks and preferably not more than four weeks, should elapse between examinations. Following an examination the patient should be permitted to ask questions, which should be answered just as truthfully as possible. At this time the physician has his greatest opportunity to do educational work concerning the control of tuberculosis.

As soon after admission as possible each patient is examined by all the consultants in the various specialties of medicine. In years past a diagnosis of tuberculosis meant complete loss of the general practitioner's interest in the patient. The condition is not quite so bad to-day, but it is remarkable, even now, how many of the men in general practice surrender when tubercle bacilli are found in the sputum. From that very time they attribute every pain and every complaint to the fact that the patient has tuberculosis. They forget that the tuberculous individual is just as liable, perhaps more so, to non-tuberculous pathological conditions as individuals with no clinical tuberculosis. Since this is true every patient admitted to a hospital for the tuberculous should be examined for tuberculous and non-tuberculous lesions and defects of every part of the body. Non-tuberculous lesions and defects discovered and healed or corrected may add greatly to the comfort of the patient and the chances of arrest of his tuberculous lesions. How frequently we see indigent patients made extremely nervous and irritable from defective vision! How often we see those showing considerable toxemia from pyorrhea, carious teeth, chronically infected tonsils, or other non-tuberculous foci of infection. How frequently indigent patients are admitted with some very disturbing skin condition! All such conditions should be detected and receive the proper treatment soon after the patient is admitted.

In addition to non-tuberculous lesions any patient admitted to a sanatorium may be suffering from tuberculous lesions in other parts of the body than the lungs. These lesions may be so slight as to cause no symptoms, yet they may be detectable on very careful examination. In a recent conversation with Dr. David A. Stewart, of the Manitoba Sanatorium, I was delighted to hear him say that from a recent study of the gastro-intestinal tract in which more than 700 observations were made he had concluded that in most cases when symptoms of tuberculous lesions in the tract appear one is about six months too late in making the diagnosis, and that a complete study of the gastro-intestinal tract should be made when the patient is first seen. If early tuberculous lesions in any part of the body are detected before any symptoms appear and the proper treatment instituted they may heal without the patient ever having any knowledge of their existence, so far as symptoms are concerned; therefore, careful examinations of all parts of the body by physicians in the various specialties should be done in every case admitted, even though the history and present complaints do not seem to warrant them.

Members of the visiting medical staff have fulfilled only a part of their duties when they have made the examinations and prescribed the necessary treatment. It is true that in so doing they have contributed much to the welfare of the patients, but they have received much in the way of experience from the patients. They have had a wonderful opportunity to study and compile data concerning tuberculosis. They are obligated to their fellow members of the medical profession to analyze such data and prepare the results of their experiences in such form that it may be made available, through medical journals, to the medical profession as a whole. It is the duty of every member of this staff to select some problem for research, pursue it diligently, and at the proper time present the results to the medical profession. Negative results are often as significant as positive ones. Consider, if you please, the value to the medical profession of the results of researches on the kidney of 200 patients suffering from unmistakable pulmonary tuberculosis; the results of your work on the gastro-intestinal tract of 200 patients suffering from pulmonary tuberculosis; the results of your work on the eyes, larynges, mouths, and tonsils of 200 patients suffering from pulmonary tuberculosis; the results of your work

on the glands of internal secretion of 200 patients suffering from pulmonary tuberculosis; the results of your work on the hearts of 200 patients suffering from pulmonary tuberculosis; the results of your work on the female generative organs of 200 patients suffering from pulmonary tuberculosis; the results of  $x$ -ray studies on 200 patients suffering from pulmonary tuberculosis; the results of your work on the nervous and mental status of 200 patients suffering from pulmonary tuberculosis; and the results of your work on the bones and joints of 200 patients suffering from pulmonary tuberculosis.

The number 200 is arbitrary, and I have mentioned only a few possibilities, but there is no limit to the splendid contributions to the medical sciences that can be, and should be, made by the members of this staff.

Finally, the members of the medical staff must assume the responsibility of improving the health of every patient admitted to the hospital. It is upon our shoulders that criticism concerning housing, feeding, nursing care, education, recreation, and medical care ultimately fall. If at the end of two years statistics show that the results in this institution have not been as good as in other institutions admitting a similar class of patients the criticism will fall, not upon the City of Minneapolis or the General Hospital, but upon this medical staff. If in due time each of us has not contributed something which will aid the medical profession in the diagnosis and treatment of tuberculosis we shall be criticized, and justly so. Therefore any criticism regarding any phase of the workings of this institution that reaches our ears should be investigated thoroughly and dealt with justly.

## TUBERCULOSIS: A REVIEW OF SANATORIUM CASES\*

By D. A. STEWART, M.D.

<sup>1</sup> NINETTE, MANITOBA

It has seemed to me that perhaps it would be better in this session, instead of having a set paper, to have a clinical talk, as if I were bringing the patients before you. As we cannot actually have the patients I have brought some  $x$ -ray pictures, which I can show you on the screen.

$X$ -ray plates, of course, help to make a diagnosis. They have another purpose. If you take plates of patients early and again later you will find that you have been taught a great deal about the pathology of tuberculosis and its progress from bad to worse, or from bad to better. Remember, also, that there are a good many things to see even in the normal chest and that there are many shadows in plates which do not mean pulmonary tuberculosis.

Let me say that there is just one cure for tuberculosis in any part of the body, and that one cure is rest. The more completely that cure is applied the more satisfactory the result will be. We are keeping our patients in bed longer, and sending them to bed earlier, than we ever have done before. We send them to bed to relieve their symptoms and keep them in bed to cure their disease. We used to say a long

time ago that, if we could only get the cases early, we could always cure pulmonary tuberculosis. It is true that a great deal can be done if we get the case early, but the fact remains that we cannot always clear them up even when we do get them early. The majority of cases we do not get anything like early.

I had an assistant for eight months who said he came to see early cases and learn what the signs and symptoms were. After eight months he said he had not seen an early case. That is just about the way it goes. Rist says there is no such thing as an early case, that tuberculosis jumps from nothing to a great deal. I do not think that is quite true, but a really early case of tuberculosis is a rather rare find, at least for sanatorium men. It seems as though there were a conspiracy among the doctors of the country whereby we are prevented from having the early cases. The idea seems to be that tuberculosis must not be talked about in the best regulated families. No matter what the symptoms are, they must not be talked about. When patients come to the doctor with signs and symptoms of tuberculosis they are told that it may be typhoid or diabetes, or anything else under the sun rather than what it is. One would really think that not the last but the first disease

\*Presented at the forty-second annual meeting of the North Dakota State Medical Association at Grand Forks, N. D., May 31 and June 1, 1923.



to speak about would be the disease that carries off one out of ten in our community. In Manitoba I think they begin to send tuberculous patients to me just about the time they begin to be a nuisance to themselves and their friends, not when they begin to get sick, but when they begin to die.

If we were to handle fires as we handle tuberculosis we would never worry about fire, year after year, and never think of taking out insurance. If we were to see smoke coming out of a house we would simply sit down and watch it; if more smoke came out we would say everything was going along much as it should be, and if flames burst forth or the roof fell in we would say, "Well, maybe we had better do something," and would go over and turn in a fire alarm. That is about the way we would handle a fire if we handled it as we are handling tuberculosis, and I know Dr. Lamont has just about the same trouble in North Dakota as we have up in Manitoba.

I will show eleven slides representing eleven consecutive admissions to the Manitoba Sanatorium during one week in May, 1923. You will easily appreciate that these are not early cases.

The first shows the chest of a man who was supposed to have diabetes. Perhaps he did. Anyway, he was treated for diabetes until he coughed so badly that his chest was examined, and then he was so far advanced that nothing could be done. Perhaps chest plates in diabetes cases as a routine would be a good rule.

The next is that of a woman who was in the hospital in May, 1912, again in July, 1922, and again in November, 1922. The diagnosis, which must have been fairly plain, was not made until March, 1923. She will doubtless die and leave four or five children. Early diagnosis might have saved her life.

The next was a woman who went to a doctor who gave her cough medicine, but did not examine her chest. By and by she fainted one day and was carried to the hospital, where her sputum was examined and tuberculosis diagnosed. She has very far-advanced disease. These things perhaps do not happen in North Dakota, but they do happen in Manitoba.

This next patient is an Austrian woman, who probably has had tuberculosis seven years. It is well to remember that about one in four of these Austrian people die of tuberculosis, so the possibility of tuberculosis in them is greater than in others. About seven months ago a child was born

to her. Children had been coming right along, but this last one took a great deal of attention. It was never well and was never out of the mother's arms, so the drag of pregnancy and the drag of delivery was added to by the drag of lactation and the care of a sickly child, with the result that the mother, already likely tuberculous, ran down rapidly in seven months. Still, it was the third doctor who examined her who made the diagnosis. We should certainly do better than that.

The next patient was a man who had pneumonia five years ago and has never been well since. Two years ago he gave up work and for four months has been in bed. He came to the sanatorium moribund and has since died. Some of his neighbors suspected that he might have tuberculosis.

The next is a different kind of case. This man had pleurisy eleven years ago and again eight years ago. He is a tailor, has never been healthy, and he thought perhaps his occupation was not good for him. He coughed pretty steadily and was unable to do very much work for several years, but it was eleven years before he went to a doctor. He is better now, and while we cannot heal his two bad lungs he will improve a great deal and will probably go back to work. To what occupation? Tailoring, because he knows that best. There is no disadvantage in sending a patient back to good indoor work. If we consider out-door work, what would be a suitable occupation? It is just about as easy to secure a bank presidency as a really suitable out-door job. We prefer to send our patients back to in-door occupations because, as a rule, about nine times out of ten, these are better than any out-door work we can secure. We still have this man in bed because bed is the place in which tuberculosis is cured.

The next patient was supposed to be diabetic and lived away out in the country. Whether she had diabetes or not I do not know. The tuberculosis has undoubtedly been developing for five years. Children have been born to her every year, and she has been under very unfavorable conditions in every way. She did not go to a doctor until she had reached a very advanced stage of the disease. Not unlikely her attempt to modify her diet on account of supposed diabetes was a factor in the etiology of her tuberculosis.

The doctors are not at fault altogether. The chief reason why we do not get tuberculous patients earlier is that there is no realization

generally among the people throughout the country of the seriousness of small, medium, or large symptoms. I think about 40 per cent of the fault can be charged up against the doctor and about 60 per cent to the people. It is time we were teaching people more than we have heretofore about the symptoms of this serious disease. We make it a rule at our provincial medical conventions always to have one public address at every convention at which instruction is given about medical matters. You know the tendency in your own country to educate the public. The *Journal of the American Medical Association* has recently published an excellent magazine, *Hygeia*, and there is another similar magazine published by the *Modern Hospital*, which should be of great assistance in education.

In the next case the diagnosis was made late, but the man is now so much improved that it is hard to induce him to stay on the cure. I think there has been a slow accretion of tuberculosis which began—we do not know just when—but it has been getting more widespread all these years.

Of course, you all know that infection usually takes place in childhood, but there are some very impressive statistics. A Saskatchewan survey showed that 44.4 per cent of the children aged six had already been infected. At fourteen years 61 per cent had been infected and before the age of eighteen the infection was present in 76 per cent. That is in a province which has a death rate that is one of the lowest in the world, the incidence of tuberculosis is greater up to the age of eighteen than the incidence of measles infection.

This next man had a hemorrhage. It has been said that a hemorrhage is the end of the beginning or the beginning of the end. In this case it was neither. Those who have a hemorrhage early in the disease are often fortunate, for they bring their disease under treatment much earlier than they might otherwise do.

The pneumonia that frequently follows hemorrhage is the thing to be afraid of. When a patient begins to have hemorrhages, do not be afraid that the patient will die from loss of blood, for that will likely not happen, but be afraid of the pneumonia that follows the hemorrhage.

The next patient was a boy who had had encephalitis. His father was tuberculous before him, and the patient had lived, when a young boy, with an uncle who was tuberculous. I spoke about early infection in tuberculosis. The

big factor in etiology is not infection, but breaking-down conditions. The recent illness broke down the resistance of this boy, and the disease then became very active.

The last case of the eleven was a Galician who was sent in for diagnosis. We made it easily, as you may imagine after looking at the plate.

Many patients who have taken the cure "carry on" fairly well. "Carrying on" means being well adjusted to environment. When a man begins to lose balance he must be boosted up so that he can again go on. This man got out of his adjustment. What happened? He got married. Sometimes this is a good plan for the tuberculous man; as well as for other men. It sometimes gives him a better home and better care, but this boy married unwisely. His wife wanted to have a full measure of evenings out, a full measure of amusements generally, and she dragged him out night after night. She was extravagant, so he had to work harder and was thrown out of adjustment. Finally, a strike came on, and to keep the house going he had to take up a very unsuitable occupation in which he remained for about three months. By that time he was "all in." If he had kept up his adjustment, if he had not married, or if he had married someone who would have helped him, and not hindered, he probably would have been well to-day, or at least able to carry on. The actual lesion is sometimes the least element in success or failure. Adjustment to environment is even more important.

Tuberculosis is a disease in which the warfare is usually a trench warfare. There may be very little seen above the surface, no cannonading, but the fight is on underneath.

Tuberculosis, by the way, is a disease of the apex, and not of the base. When you get signs in the base be doubtful of tuberculosis. You can get plenty of basal signs, but primary basal tuberculosis is rare. One investigator in Philadelphia said that in 500 autopsies he did not find one *primary* basal case.

When you find bronchitis or bronchiectasis below the clavicle immediately begin to look for the cause above the clavicle. Look for foci in the teeth, tonsils, sinuses.

Artificial pneumothorax is one of the best methods we have in the treatment of tuberculosis and is sometimes useful in the treatment of other conditions, as well. The next big thing in the treatment of tuberculosis and in bronchial abscess and bronchiectasis is plastic surgery of



the chest. This should be done, not in one operation, but in at least two, perhaps in several. Pneumothorax should be tried first, but the last court of resort in some cases, not in all, is plastic surgery, collapsing the chest by knocking in the bony wall.

When no tuberculosis is present a bronchial fistula can usually be cleared up easily, but, if tuberculosis is present, it is not so simple.

You perhaps have an idea that everything in the tuberculous case goes slowly and that nothing goes rapidly, but in some cases the progress is very rapid. In the course of a few weeks marked advance is made in some instances.

I told you a while ago that there is only one treatment for tuberculosis and that is rest, that sending patients to bed cures their symptoms and keeping them there cures their disease. There is one safe bit of advice you can give at long distance to apply to all cases of tuberculosis,—put them to bed. In this you cannot make much of a mistake.

We are apt to think of tuberculosis as a disease of the lungs and are apt to keep our eyes focused upon the chest. It is not a disease of the lungs only. Tuberculosis is a generalized disease. Sometimes it becomes a localized disease, but in unimmunized peoples and in children it is a general disease, and when progressive the progress is a matter of increase in extensiveness rather than intensiveness. At our sanatorium 50 per cent of the people who die have definite, easily apparent, symptoms of intestinal infection. One of the phases of tuberculosis, the significance of which has not been realized, is tuberculosis in the intestinal tract. When the ordinary tuberculous patients die, in ninety-five cases out of a hundred there may be found, postmortem, ulcers inside the bowel. The ulceration is chiefly around the cecum, above and below, with the cecum as the storm center. The old idea was, and perhaps is, that intestinal tuberculosis is the beginning of the end, and that nothing happens after that except the necropsy. I do not think that is correct. Likely, the intestinal tuberculosis becomes much worse just antemortem, but if you look diligently enough you will find that the intestinal infection begins even at an early stage. We are giving barium meals now as a routine in all our cases, and from this we have drawn considerable information. The chief diagnostic points in the barium meal are hypermotility and defective filling. I think we get more from the meal than from the

barium enema; and most physicians who are doing this work agree with this.

In attempting diagnosis or treatment of tuberculosis of the intestines you have to go out and meet the symptoms. You cannot wait for them to appear, for then it is too late. Very often a barium meal will show even gross disease of the intestine when there has been no sign or symptom of disease, and no complaint and symptoms can be elicited by careful questioning long before they would be complained of. The earlier symptoms, when they do appear, are not diarrhea but constipation, anorexia and a nervousness beyond usual. What can we do? We think there is value in the light therapy, either heliotherapy or the ultraviolet ray.

Summing up, we should get tuberculous people under treatment earlier. If we had more of the old family physicians we used to have we should probably get patients earlier than we do now, for then the doctor felt free to take the initiative, and now the people have to take it.

#### DISCUSSION

DR. JAMES GRASSICK (Grand Forks): It is always a pleasure to meet a master workman, no matter in what line of activity he may be engaged. It is a still greater pleasure to see him at work, to imitate some of his enthusiasm, and to learn what we may of his methods. We have anticipated a treat, and got all of that and more.

In Dr. Stewart's discussion there were several points that he especially emphasized. He called attention very forcibly to childhood infection. He did not overstate the case. It is generally recognized that a large proportion of tuberculous cases in adults have their beginning in childhood. The coming fight against the disease will be for the protection of the child. The control of the carrier, or spreader, will be our objective just as we control the infection of scarlet fever, typhoid fever, or of any other communicable disease. The tuberculous patient, if well cared for, is not a menace to the community. This is well exemplified in sanatoria, where it is rare for an attendant to contract the disease. But they must be controlled and supervised if we are to save the child.

Another point that Dr. Stewart emphasized was rest. This is one of the things which the ordinary physician is up against. The home treatment as a rule fails through lack of discipline. We cannot get our patient to go to bed and to stay there. The three graces of the cure are Good Food, Fresh Air, and Rest—and the greatest of these is Rest.

DR. M. GEORGE MILAN (Thief River Falls, Minn.): Unfortunately, I did not have the pleasure of hearing Dr. Stewart's address in full, and consequently I do not feel justified in attempting to discuss the same in its entirety, but I would like to say a few words on the question of differential diagnosis. This latter essential in the consideration of pulmonary disease is one that I feel a great many of us

are prone to evade in discussion, and this, undoubtedly, is due to our inability to establish a definite train of physical signs and symptoms for each individual specific pulmonary disease.

The lung pathology is important as to the nature of the pathology itself, but the exact etiology most of the time cannot be told from the nature of the pathology alone, for the infiltrations and the consolidations which may be present in the pulmonary tuberculous case differ little, if any, from infiltrations and consolidations of other diseases. There is no definite group of physical signs or symptoms, or any set combination of both, which can be called pathognomonic of pulmonary tuberculosis. Physical signs will probably tell us that there is pathology in the chest, and the symptoms will show us the local focal or constitutional effect of this pathology. Of extreme importance in differential diagnosis is the history. In cases wherein pulmonary tuberculosis must be considered in the diagnosis we should be particularly on the watch for any conditions which can be caused by micro-organisms exclusive of the tubercle bacillus, which micro-organisms we find a great many times causing a superimposed, secondary infection upon our tuberculous lesions. The only one pathognomonic element in these tuberculous cases, which of itself gives us the unsailable truth, is the presence of tubercle bacilli in the sputum. I do not believe that râles occurring and persisting in the apex of the lung are always positive evidence of tubercle.

Recently a patient appeared before me for examination with complaint referable to the chest. Gross pathology was present in both lungs with symptoms pointing to respiratory infection. The temperature was 102.5° in the morning, and the pulse rate was 120. The history itself was not indicative of any one particular pulmonary disease, but could be applied in the diagnosis of a great many pulmonary conditions. The leukocyte count showed in the neighborhood of 12,000, and secondary anemia was present. The heart was enlarged with the presence of some myocarditis. Physical signs in the lungs disclosed impairment of the resonance, bronchophony, pectoriloquy, disturbed breath sounds, and moisture. The final factor that made my diagnosis was the presence of tubercle bacilli in the sputum, and had I not been able to isolate bacilli I doubt that the specific disease present would have been disclosed to me on my first examination. The diagnostic summary of this case made it clear that I was dealing with pulmonary tuberculosis complicated by an acute respiratory non-tuberculous infection and in addition heart involvement as a result of either one or both infections present.

In making our diagnosis of pulmonary tuberculosis we must consider the factors, first, infection and, secondly, clinical tuberculosis. The patient cannot have the second without the first being present. If we determine that he has infection only but no clinical tuberculosis we do not need to worry a great deal about this patient, but with clinical tuberculosis being present, or, in other words, an individual being sick with tuberculosis, then this individual is the patient that requires the attention

of the lung specialist and is one who should be cared for particularly in the sanatorium.

DR. STEWART (closing): I fully agree with practically all of what has been brought out in the discussion. I wish that more time might have been allowed for discussion. I thank you who have discussed my extended remarks and who have listened to them for your kind attention.

## BOOK NOTICES

A PRIMER FOR DIABETIC PATIENTS. By Russell M. Wilder, M.D., Mary A. Foley, and Daisy Ellithorpe. Second Edition, reset, 1923. Philadelphia: W. B. Saunders Company.

This is a complete revision of this widely popular primer for diabetic patients made necessary by the recent advances in the field of diabetic therapy.

The salient features in the course and treatment of this disease are explained clearly and simply with the design of reaching the intelligence of the uninformed reader. Diet lists are included.

The method of using insulin as practiced by the principal author is explained fully and should do much to check certain widespread misconceptions of the value of this remedy.

The book is to be recommended for the lay reader.

—J. H. TAYLOR, M.D.

OBSTETRICS FOR NURSES. By C. B. Reed, M.D. Second edition. St. Louis: C. V. Mosby Company. 144 illustrations, including two color plates. 1923.

Of the numerous volumes of obstetrical nursing there are few which obtain the proper balance as to material. Some are too technical for the nurse; some lack proper emphasis on important subjects; others combine gynecology and obstetrics with injustice to both.

This book is clear and concise, lacks technicality, and has a good appreciation of values of subjects treated.

—JALMAR H. SIMONS, M.D.

EXERCISE FOR HEALTH AND CORRECTION. By Frank D. Dickson, M.D., and Rex L. Diveley, M.D. Philadelphia and London: J. B. Lippincott Company, 1913.

This handbook presents exercises for "health and correction" in a practical and scientifically sound manner. The exercises are considered in groups, the first two groups being designed to tone up the muscles of the body as a whole. The third and fourth groups of exercises are especially commendable, as they concentrate on the development of the torso. Far too little attention is given this most important part of the body in the ordinary systems of exercise. The exercises for correction of faulty posture are very good, and demonstrate the experience of the authors in this type of work.

The book is well illustrated, and should be of great value to teachers, nurses, physicians, and individuals who wish a simple though scientific guide for exercise.

—MYRON O. HENRY, M.D.



# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
 The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
 (For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

MARCH 1, 1924

## THE PRESENT INTANGIBLE EPIDEMIC

It seems quite evident that there is something in the atmosphere in the nature of an infection, the type of which is almost wholly unknown, but it has produced a great deal of inconvenience and suffering. There are comparatively few cases, however, among those represented which are of the old type that we saw so much of in former years, like poliomyelitis or lethargic encephalitis. That which we see now is of the mucous-membrane type, involving the throat, nose, and all the surroundings sinuses, or affecting the membranous lining of the bronchial tubes in which all forms of râles and disorders accompany the bronchial irritation. The gastrointestinal tract has suffered a number of serious inconveniences, and not infrequently other organs have been involved as well. The epidemic is not a local one; it is fairly general and has been reported in many parts of the country, an infection of the mucous membranes widely and generously distributed, in which the patient is obliged to go to bed (or should be in bed under most circumstances) until recovered from the acuteness of the infection. Many others, of course, are grievously disappointed in that they do not recover from the infection, and most of the patients, or many of them, at least, complain of extreme exhaustion, fatigue, and inability to endure.

The remedy is a simple one, ordinarily. It is

rest in bed, a fairly generous diet, and warm clothing with an abundance of fresh air. We have heard nothing during the last year or two of the serum treatment to prevent these infections. It has proved futile, and the remedy lies elsewhere,—in common-sense care, the avoidance of crowds where coughing is prevalent. No person with a cough should be permitted to go into a public assemblage. The writer well remembers Sir Victor Horsley's clinic in London, where if any of the visiting doctors coughed he spoke to them once; the second time they coughed he requested them to leave the room,—a very proper preventive measure, not only to the patient on the operating-table but to the neighboring physicians.

The various remedies that have been advertised are patent medicines, generally, and they contain all sorts of impossible combinations of drugs; and doubtless in some cases, if the patient takes care of himself, he may recover provided he stays in bed long enough, and then he attributes his cure to the drug prominently displayed. The other remedies commonly used are the coal-tar products,—phenacetin, etc.—with urotropin, benzoate of soda, and, not to be despised, the old-fashioned quinine.

This epidemic will continue until warm weather comes and clears out our respiratory and gastrointestinal tracts. Then it will subside for a time, only to return, repeat its wanderings, and inflict its sequelæ upon an unsuspecting class of people. We are often tempted to wonder how much the Christian Scientist suffers from a bad cold in whatever part of his mucous membrane it may lie. We are often in a wandering state of mind, too, about the other cults in medicine—whether the adjustment of a loose spinal vertebra would terminate an acute attack of grip or influenza. But these speculations are futile and vain. Rest, food, sleep, and quiet are Nature's remedies.

## NATIONAL BRAIN STORMS

The country, from East to West and from North to South, seems to be in a state of hysteria, and in some parts of the country it borders very closely on a typical, active psychosis, and in occasional instances it represents the boasting and arrogance and suspicion of the paranoiac. There seems to be one end in view,—to try in every way to supplant the other man. Consequently, it means the introduction of, first, the so-called reforming class; second, those who are ignorant and yet who have such fantastic ideas that they

think they are teeming with knowledge; they try to interpret laws and governmental problems without understanding at all what the constitution of the government requires, and they are trying to insert their feeble-minded ideas before the nation, either to attract vainglorious attention or perhaps in some way are trying to make themselves conspicuous. These are the paranoid types. They are suspicious of every move that is made, and they endeavor to interfere with it because they are opposed to another man's point of view. Unfortunately, our present political situation is ripe for such an outburst, for the simple reason that many of our politicians belong to the milder forms of the psychoses. The disruption of the government in Washington, the arrangement of opposition to what seems to be sane legislation, and the scandal and intrigue supposedly involving high officials have brought out everything that is disturbing, disrupting, and destructive.

Fortunately, while this Teapot-Dome affair is receiving a tempestuous inquiry, there is enough for all the politicians of every class to talk about; and a recent issue of *Judge* shows the dome of the Capitol at Washington with a spout and a handle, boiling over the buildings below while the scampering legislators are striving to get out from under this boiling mass. The man who is represented as sitting on this dome is very likely to be blown high in the air,—and who he is and where he comes from will only be known later, after the investigation if there ever is one.

Coupled with this "oily" inquiry is the scandalous condition of the Veterans' Bureau situation, in which many are involved; and evidently much money has been spent illegally and without justifiable results. Within a few days the accounts which we have read in the press have involved the selection of St. Cloud as a hospital-zone region. Some months ago, before this site was selected, a site was offered the government within two miles of Minneapolis; but the location of the hospital was finally turned in to *St. Cloud in order that the specialists from St. Paul and Minneapolis could reach it more conveniently*. Evidently, someone has made a lot of money out of both of these scandalous enterprises, and the people are getting very tired of this sort of politics, and it would not be strange if an effort were made by the interested tax-paying sufferer to lock up in a neuropsychiatric hospital many of our so-called lawmakers.

The only outstanding and fortunate feature of

the whole situation is that these two subjects have occupied almost the full time of Congress, consequently no other laws have been passed, and if they can keep the pot boiling long enough we may get through this congressional misfit this year without being trapped into laws which are made solely for the benefit of the politicians.

## THE NORTHWESTERN HOSPITAL DRIVE

After many weeks of conference and consultation, the final organization of a plan and of a large band of people, the ultimate and precipitate drive for the collection of funds for the Northwestern Hospital is practically at an end. Under the circumstances—and the circumstances cover hard times, lack of money, and the indifference of many people to requests for subscriptions—the drive has been a practical success, although they have attained but half the amount they expected.

Two hundred fifty thousand dollars for a new building is no small amount, and if one chooses to compare what might be done with this amount, let him look over the New Asbury Hospital, which was built for approximately less than two hundred forty thousand dollars, and is a modern, up-to-date, well-equipped institution. The same kind of a building on the grounds of the present Northwestern Hospital will definitely relieve the hospital strain, even though the bed-capacity be reduced to 150. Then, too, the drive for the Midway Hospital doubtless interfered somewhat with the expected success of the Northwestern drive. People were asked to contribute to two hospital propositions, and many were undecided as to what they should do and what they could do, and what they have finally decided to do. At all events, the hospital situation will be improved in Minneapolis for the present, but it will not be long before the Northwestern Hospital will need another building, and it is to be expected that when that time comes money will be a little more willing to expend itself and that people will have more to spend upon hospital organizations.

The editor has never seen a more willing body of workers gathered together and with more enthusiasm than those who were at the frequent meetings of the Northwestern Hospital committee. They seemed to take the work very seriously, and in every instance as far as we can gather they did the best they knew how, and it



was not the fault of the canvassers or the promoters, or the organizers of the drive, that they did not realize their expectations. There may be other surprises in store for the hospital situation in Minneapolis before long. It has been rumored that another large sum has been given to a local hospital, but was withheld until after the Northwestern and Midway Hospital drives were completed.

The Midway Hospital drive for a million dollars was in a much larger field, covering several states.

### SYMPOSIUM ON TUBERCULOSIS

THE JOURNAL-LANCET feels itself fortunate in being able to present its readers, in this and the following issue, a "Symposium on Tuberculosis" by sixteen members of the staff of the Parkview Sanatorium, which is the Minneapolis hospital (formerly the Hopewell Hospital) for the treatment and care of the city's tuberculous patients. This staff is composed of volunteer experts, who bring to the patients of this hospital the same degree of skill in treatment, both medical and surgical, and the same degree of care in after-treatment that they give to their private patients, however large the fees paid by such may be.

The symposium reveals the most modern methods of treating the tuberculous patient, and is followed by a paper by Dr. Myers, the Chief of the Tuberculosis Service of Parkview, on the general subject of the care of the city's tuberculous patients; and also by a "talk" by Dr. D. A. Stewart, of Manitoba, on some special phases of sanatorium cases. Dr. Stewart is one of the foremost tuberculosis men in North America, and his writings are highly esteemed in the United States.

THE JOURNAL-LANCET has given its readers during the past two years much excellent reading on the subject of tuberculosis, particularly on the new methods of our city's open-air school, Lymanhurst. It has published most of the forty or more papers read by the staff and guests of Lymanhurst, as catalogued in a paper by Dr. Myers in THE LANCET for January 15, 1924.

### NEWS ITEMS

Dr. H. C. Doms, of Slayton, has begun work on a fine new office building.

Dr. V. S. Irvine has moved from Lankin, N. D., to Park River, N. D.

Dr. Bertha O. Schwein has moved from Sioux Falls, S. D., to Randolph, Kas.

Dr. W. P. Herbst, of the Mayo Clinic, will move to Minneapolis next month.

Dr. T. O. Young has left the Mayo Clinic to enter the practice of surgery in Duluth.

Dr. Otto Aagaard, of Dr. Rovsing's Clinic in Copenhagen, is spending a month in Rochester.

Dr. B. L. Laver, of Guy's Hospital, London, is spending several months at the Mayo Clinic.

Nearly 800 persons were given free treatment and care by the Miller Hospital of St. Paul in 1923.

The Northwestern Clinic of Crookston was the successful bidder for the care of the poor of that city.

Dr. Louis Faust, a Fellow in the Mayo Foundation, was married to Miss Elsie Eaton, of Rochester, on January 15.

Dr. Jacob L. Hoffman, of Henning, died last month at the age of 58. Dr. Hoffman graduated in Norway in 1894.

Dr. Wallace H. Cole, of St. Paul, has returned from Boston, where he has been for some time visiting hospitals and clinics.

The Southern Minnesota Medical Association will hold its annual meeting in Mankato on May 19th, doing its work in a one-day session.

The St. Paul Schools have increased their nursing staff by an addition of four nurses, which brings the number employed up to seventeen.

Dr. A. W. Adson of Rochester, delivered the Joyce Memorial Lecture in Portland, Oregon, on February 14. His subject was "Trifacial Neuralgia."

Dr. L. M. Brunet, of Duluth, has retired from practice at the end of fifty years of active work, mostly in Duluth and Cloquet. He goes to Detroit, Mich.

At the mid-winter meeting of the Sioux Valley Medical Association, held at Sioux City, Iowa, it was voted to hold the annual meeting at Sioux Falls, S. D., in June next.

The Red Wing Hospital is to have a new wing to its building which will double its present capacity. Mr. and Mrs. C. E. Friedrich gave \$35,000 for this purpose.

The next annual meeting of the North Dakota State Medical Association will be held at Bismarck, on September 9, 10, 11, the House of Delegates meeting the 9th.

Dr. Homer F. Swift, of the Rockefeller Insti-

tute for Medical Research, was in Rochester February 19 and 20, and gave a Mayo Foundation Lecture on "Rheumatic Fever."

The friends of Dr. and Mrs. A. W. Abbott, of Minneapolis, are giving them a dinner to-day at the Minneapolis Club on the fifty-fifth anniversary of Dr. Abbott's medical practice.

Dr. H. O. Ternstrom, of St. James, has turned his practice over to Dr. F. L. Bregel, who has been associated with him for the past six months. Dr. Ternstrom has moved to Minneapolis.

Dr. T. J. Kinsella, formerly a Fellow in the Mayo Foundation, and later connected with the Nicollet Clinic, Minneapolis, was married to Miss Sara Monahan at Cedar Rapids on January 28.

The University Hospital of Minneapolis is seeking a gift of \$2,000,000 from the Rockefeller Foundation. The gift would be followed by a new City Hospital located on or near the University Campus.

New Prague is to have a handsome new community hospital building, the gift of former residents, Mr. W. L. Harvey and his wife, whose home and \$5,000 in cash have been donated to the city for hospital purposes.

Dr. George McL. Waldie, who recently resigned as superintendent of the Fair Oaks State Tuberculosis Sanatorium at Wadena, has been appointed superintendent of the Buena Vista State Sanatorium at Wabasha.

Dr. Ogawa, Dean of the Medical School of the University of Kyoto, and Dr. Toda, of Okayama Medical University, who are making a survey of the principal medical schools of America and Europe, spent February 14 visiting the Mayo Foundation and Clinic.

The United States Public Health Service announces that, in co-operation with several universities, it will conduct a number of summer schools in public health the coming summer. One will be held at the University of Iowa, Iowa City, Iowa, from June 9 to July 18.

Dr. and Mrs. W. J. Mayo left the first of February for New Zealand and Australia. Dr. Mayo will attend the meeting of the Australasian conference of the British Medical Association in New Zealand, and will spend about six weeks visiting the various hospitals and universities in those countries.

The Huron (S. D.) Medical Society held a stated monthly meeting on February 16th at Huron. Dr. F. E. Clough, of Lead, president

of the State Medical Association, was present and gave a brief address. Dr. G. W. Launsbach spoke on "Bronchopneumonia"; and Dr. H. A. Saylor spoke on "South Dakota Public Health Clinic."

The Alpha Xi chapter of the Phi Delta Epsilon (medical) Fraternity of the University of Minnesota has secured as its first speaker for the ensuing year to be held under its auspices one of their members, Dr. Morris Fishbein, associate editor, of the *Journal of the American Medical Association* and of *Hygeia*. He will appear first, March 19, 1924, at the regular Wednesday noon meeting of the Hennepin County Medical Society. He will speak briefly on the subject of the "Preparation of the Medical Manuscript." At the evening meeting, to be held on the same day he will speak more formally and at length on the subject of "Medicine and the Press," which is to be followed by discussions, by members of the medical profession, as well as by representative newspaper men. Both these meetings are to be held in the Library rooms of the Hennepin County Medical Society, in the Donaldson Building, and are open to all members of the medical profession.

#### Wanted: Physician on Salary

An assistant physician for general practice on the Mesaba Range. Must be a high-grade man, able to assume responsibility. Good salary to right man. Address 58, care of this office.

#### Office Position Wanted in Minneapolis or St. Paul

By the widow of a physician. Applicant has a pleasing personality, and has just learned stenography. Will work for a very moderate salary. Address 66, care of this office.

#### Minneapolis Office for Rent

Choice of several rooms in a Minneapolis building exclusively for physicians and dentists. Reception room, nurse, laboratory technicians, etc., in attendance. Address 67, care of this office.

#### Practice for Sale

In the best town in Minnesota, oldest practice in the country. Price about \$900, includes place to live, auto, etc. Come and see, or write, enclosing an addressed and stamped envelope. Address Dr. J. S. Seeley, Faribault, Minn.

#### Office Position Wanted

A thoroughly experienced medical secretary, correspondent, bookkeeper, and stenographer desires a place in a hospital or office in the Twin Cities. Familiar with all medical office detail, and can give the best of references. Address 64, care of this office.



**Wanted, An Assistant Physician**

Preferably a physician with one or two years' experience. An assistant physician with ultimate partnership and the inheritance of a large and old-established practice. Must be especially interested in obstetrics and diseases of women. Address 61, care of this office.

**Physician Wanted**

At once to take over a practice in a town of 600 near the Twin Cities. No competition. A Protestant and German preferred. Small investment required. Do not answer unless you are in earnest. A very good position for one who wants a country practice. Address 68, care of this office.

**Late Model X-Ray Transformer for Sale**

Victor Snook X-Ray Transformer, Auto and Resistance Control, complete with Coolidge Transformer and Control. Remote Control, Transformer and Rectifying Device in Cabinet. For 220 volt direct current. Reasonably priced. For further information address 60, care of this office.

**Physician's Residence for Sale in St. Paul**

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

**Wanted**

Director, Bureau Child Hygiene wanted. He must be a graduate in medicine or public health. May be man or woman. Some experience in public health necessary. A recent graduate who wishes to grow up with the work preferred. Salary \$2,500 to \$3,000. Send complete credentials with first letter. Address the State Health Officer, Bismarck, N. D.

**Physician Wanted**

In a mud bath institution and health resort in Minnesota, which has a splendid building and good patronage and is equipped for both emergency and general surgery. Will pay the right man a good salary with board and room for himself and wife, if married. The opening promises permanency and fair earning for either a young or middle-aged man. Address 59, care of this office.

**Small Minnesota Hospital for Sale**

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

# SERVICE and SECURITY

**ASSETS**

1923.....	<b>\$1,701,170</b>
1922.....	<b>1,401,975</b>
1921.....	<b>1,139,934</b>
1919.....	<b>729,339</b>
1917.....	<b>440,497</b>
1915.....	<b>300,765</b>
1913.....	<b>208,118</b>
1911.....	<b>148,835</b>
1909.....	<b>105,000</b>

*For*  
**Medical Protective Service**  
*Have a*  
**Medical Protective Contract**

**We Lead Because--**  
**We Specialize**

**The Medical Protective Company**  
*of*  
**Fort Wayne, Indiana**

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 6

MINNEAPOLIS, MARCH 15, 1924

Per Copy, 10c  
A Year, \$2.00

## SYMPOSIUM ON TUBERCULOSIS\*

BY THE STAFF OF THE PARKVIEW TUBERCULOSIS SANATORIUM OF MINNEAPOLIS

### IN TWO PARTS—PART II

WALTER E. LIST, M.D.  
VIRGIL J. SCHWARTZ, M.D.  
WALTER J. MARCLEY, M.D.  
H. P. BACON, M.D.  
KANO IKEDA, M.D.

C. A. MCKINLAY, M.D.  
CHARLES B. WRIGHT, M.D.  
R. W. MORSE, M.D.  
THOMAS ZISKIN, M.D.  
S. R. MAXEINER, M.D.  
H. A. BURNS, M.D.

RICHARD R. CRANMER, M.D.  
LEO G. RIGLER, M.D.  
H. B. DORNBLASER, M.D.  
L. H. CADY, M.D.  
PAUL W. GIESSLER, M.D.

### RELATIONSHIP OF THE GASTRO-IN- TESTINAL TRACT TO TUBERCULOSIS

By CHARLES B. WRIGHT, M.D.

Consulting Gastro-enterologist, Lymanhurst School and  
Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

In discussing the gastro-intestinal tract in tuberculosis we may treat it under three separate headings:

First, Conditions which have no special relationship to tuberculosis, but may be present in any group of individuals, as, for instance, mouth infection, gastric ulcer, chronic appendicitis, chronic cholecystitis, hemorrhoids, fistula in ano, etc.

Second, Functional disturbances which are commonly or frequently associated with tuberculosis, but may be found in any type of chronic infection, as functional gastric disturbance, irritated colon, nostalgia, and nausea.

Third, Complications due to a direct infection

by the tubercle bacillus itself, as tuberculous peritonitis and tuberculous enteritis.

The first group needs no special discussion as it is apparent that other pathology will have a marked influence on the treatment of the patients. I wish simply to emphasize the necessity for not overlooking contributory pathology.

The second group embraces the functional gastric disturbances, by which I mean heart burn, nausea, nostalgia, morning vomiting, and bowel irregularities, all of which have a very marked influence on the patient's progress and are based on motor or secretory disturbances which may be of various sources:

1. Psychic in origin, due to the patient's surroundings, worry over domestic, financial, or other affairs, unattractive food, not the proper kind of food or the proper amount.

2. Reflex abdominal disturbances through the nervous system which are so fully discussed by Pottenger.

3. Toxic, the group of symptoms emphasized by Billings, Miller, and others, associated with

\*Presented before the Hennepin County Medical Society, Minneapolis, Minnesota, October 3, 1923.



focal infections in the non-tuberculous. These same symptoms are characteristic of early tuberculosis. In addition, unquestionably, the swallowing of large amounts of sputum, particularly during the night, may be an additional factor in the production of marked motor and secretory disturbances. Any of these symptoms, particularly if coming on late in the disease, may be associated with tuberculosis of the intestines or peritoneum.

3. The direct invasion of the gastro-intestinal tract by tuberculosis. That this is a much more frequent occurrence than was formerly supposed has been abundantly shown by the work of such men as Brown, Archibald, Carmen, Stewart, and others. I would like to call attention to a paper by Dr. Willis S. Lemon, of Rochester, Minn., in which he reviews this subject, and in addition to this a paper by D. A. Stewart, of Manitoba, Canada. I cannot do more than briefly summarize the present views in regard to intestinal tuberculosis:

First, the diagnosis: Intestinal tuberculosis in adults is practically always found in cases with pulmonary tuberculosis, although it may rarely appear as a result of peritoneal tuberculosis or tuberculosis elsewhere in the body. The frequency of its presence in pulmonary tuberculosis depends on the degree of involvement of the lungs. Intestinal ulceration has been found in different series of post-mortem examinations in from 75 to 90 per cent of those dying of pulmonary tuberculosis. Opie found in 25 per cent of all autopsies on British soldiers the nodes of healed ulcers of the bowel, which he assumed were due to primary intestinal tuberculosis in childhood. Brown found about 4 per cent positive intestinal tuberculosis and 2 per cent suspicious in his series. Stewart, dealing with a much more advanced group of cases, diagnosed 18 per cent having definite intestinal tuberculosis; 37 per cent suspected. He feels that he was entirely too conservative in the positive diagnosis and that probably most of these suspected cases really had definite intestinal involvement. The opinion seems to be according to Brown, that intestinal tuberculosis should be suspected in all cases of pulmonary tuberculosis, showing extreme nervousness, constipation, slight dyspepsia, feeling of discomfort after meals, failure to gain weight under suitable conditions, generally not doing well for which no special reason can be found. He considers severe pain or diarrhea to be early symptoms.

Archibald thinks that any derangement of

digestion or of appetite, especially in one who has pulmonary disease, and any pain should always be looked on as possibly due to tuberculosis of the bowels.

Dr. Stewart feels that disturbance of appetite is one of the early symptoms and in all cases where there is marked mental depression, which is such a common symptom in intestinal conditions.

Archibald also considers that, if patients complain of pain in the middle or lower abdomen coming at regular intervals during the day, but chiefly from the late forenoon or afternoon on, transient, often crampy or stabbing, suggesting gas pains, aggravated by food and relieved by fasting, felt only during part of the day, but persisting from day to day, then one must be very suspicious of tuberculosis. When, in addition, the patient complains of loss of appetite, or real distaste for food; when he has nausea at times; when he gives up one article of food after another; when he develops a slight fever which is not attributable to his lung condition, and if this persists over three or four weeks, then one may be almost sure of the diagnosis. In other words, we must no longer wait for the classic symptoms of anorexia, nausea, tenderness and pain, diarrhea and emaciation, for suspecting this condition. Any part of the intestinal tract, from the stomach down, may be affected, the order of frequency being the ileocecal region, the ascending colon, the jejunum, the descending colon, the sigmoid, and the rectum.

Carmen found 50 per cent of the cases had slight diarrhea, alternate diarrhea and constipation, or continuous diarrhea with vomiting and lancinating pains, flatulence, tenderness, and rapid emaciation. He considers constipation as characteristic of small bowel involvement; diarrhea as characteristic of large bowel involvement. It has now been definitely shown that the finding of tubercle bacilli in the stools in cases of open tuberculosis is of practically no value in the diagnosis of intestinal tuberculosis; for example, Phillip and Porter found in 91 patients who had bacilli in the sputum only one who did not have bacilli also in the stools.

In the cases with healed pulmonary lesions or without pulmonary lesions, the finding of tubercle bacilli is of great value in the diagnosis.

The next important factor in the diagnosis of tuberculosis of the intestine to the careful history is the x-ray examination. Dr. Carmen's classic paper covers this subject fully. He bases his opinion on three different signs: filling defects,

spastic phenomena, and obstruction. I have not the time to go further in the discussion of Carmen's findings. They have been confirmed by other observers. Stewart feels that Carmen is too conservative in his conclusions.

In summing up the diagnosis of intestinal tuberculosis I would like to quote Dr. Lemon's conclusions. He says the diagnosis of intestinal tuberculosis is based on circumstantial evidence collected from the history, examination of the patient, laboratory data, studying of material collected in the proctoscopic examination, examination of the stools for tubercle bacilli, especially in cases of healed or latent cases of pulmonary tuberculosis in which the sputum is negative or in which there is no pulmonary disease, examination of stools for evidence of ulceration, as in other ulcerative conditions; the very definite and accurate observations of the röntgenologist, and such examinations should be made in all cases of pulmonary tuberculosis; microscopic examination of tissue removed by the surgeon in operation performed from choice when the diagnosis is certain, or when advisable because of severity of symptoms, or when an opinion cannot be given with certainty; appendicitis, intestinal obstruction, and carcinoma are common members of the differential group to which tuberculosis of the cecocolon belongs.

In regard to treatment the question of abdominal operations is dependent largely on the severity of the condition and on the condition of the patient. Palliative measures should always be tried and, if operation is advisable, should be done under local anesthesia, if possible. The treatment of functional disturbances depends entirely on the cause, and requires painstaking investigation into the psychology of the patient, idiosyncrasy of diet, the time and frequency of feeding, special care in the preparation of the food, the question of gastric secretion, motility of the gastro-intestinal tract. All these should be studied. An individual management should be carried out as far as possible. In all cases not showing a gain, the actual caloric intake should be determined.

The most encouraging agent that we know of, in the opinion of Stewart, Dr. R. O. Brown, and others, is the Quartz lamp which, they believe, is of more value than direct sunlight because of the fact that the dose can be more carefully regulated and more regularly administered. It is unquestionably true, as stated by Stewart, that, if the tuberculous lesion in the intestine could be recognized early and properly

treated, prognosis in tuberculosis would be markedly improved.

In addition to heliotherapy, surgical treatment has shown encouraging results in two different types of cases. First, the hyperplastic form in which we have a quiescent lung lesion and partial or complete obstruction due to scars or the formation of tuberculous masses in the bowel. These cases are surgically imperative and show splendid results. The second group are the ulcerative type on which such operations as excision, exclusion, and colostomy have been done. A remarkable improvement has been observed in cases which were apparently hopeless before operation. The prognosis in this type of case depends almost entirely on the condition of the lungs and also whether or not there is much involvement of the small bowel, which is considered a distinct contra-indication.

A rather discouraging point of view has been given to the question of early clinical diagnosis of intestinal tuberculosis in the recent article by H. Schwatt, in collaboration with M. M. Steinbach, who reviewed 199 consecutive autopsies and studied the clinical course in these cases from the tuberculosis division of Montefiore Hospital. A part of the summary follows:

Tuberculous ulceration of the intestines occurs in from 60 to 90 per cent of cases of lethal phthisis.

In over 75 per cent more than one subdivision of the tract and in 80 per cent the small and the large intestine were found to be involved.

Completely healing intestinal ulcers were rarely found at autopsy. Scars suggesting healed ulcers, with active lesions in the same or other portions of the tract, were more frequent. A tendency to healing in advanced and widespread disease was quite common.

In spite of the large number of advanced ulcers found in most cases perforation of the serosa was infrequent.

In the majority of cases the intestinal disease ran a completely latent course, irrespective of the extent or severity of the ulceration.

The presence of the complications cannot therefore be excluded because of the absence of symptoms.

There is no symptom or group of symptoms pathognomonic of tuberculous enteritis.

In a certain proportion of cases the intestinal complication is associated with diarrhea or diarrhea alternating with constipation, colicky pain, tenderness to palpation of the abdomen, blood in the stools, and the signs of enteroperitonitis.

Diarrhea is not necessarily a symptom of advanced disease of the intestine. It occurs in cases with few and early lesions localized to a small area.

Severe, persistent, and uncontrollable diarrhea occurring in the course of advanced phthisis, practically always indicates the presence of intestinal



ulceration. The more of the above symptoms that are associated the more probable this complication.

None of the symptoms, occurring either singly or in combination, has any value whatever in definitely indicating which region or regions of the intestinal tract are involved. In the majority of cases disease of the small and large intestines must be assumed.

The cause of diarrhea and colicky pain and other symptoms in some cases and of their absence in other cases presenting a similar pathological picture is not definitely known. It appears that the location and depth of the lesions have little to do with the symptomatology. It is probable that toxemia, amyloidosis and catarrhal conditions of the mucous membrane play an important rôle.

The value of the Röntgen ray in the diagnosis of tuberculous ulceration of the intestine and particularly of early lesions and in disease of the small intestine still remains to be determined.

Operative interference, especially in advanced pulmonary tuberculosis, does not appear to be justifiable.

There is no scientific clinical and experimental evidence to show that ultraviolet rays have any palliative or curative effect on intestinal ulceration.

Calcium chloride appears to have some value as a palliative measure in some cases.

The prognosis of tuberculous ulceration of the intestine in advanced phthisis is invariably bad, and the onset of this complication ushers in the termination of the case within from three to six months.

In analyzing this article, however, one must realize that this was a study of a post-mortem series of cases, and it leaves one in some doubt as to whether the cases were studied clinically ante-mortem with the question of intestinal tuberculosis constantly in mind and an exhaustive effort made in each individual case to discover intestinal tuberculosis, or whether it was a review of clinical findings in a group of cases of pulmonary tuberculosis, without this particular point in view. It shows, at any rate, that we are far from agreement on the question of diagnosis and treatment. If 50 per cent of all cases are absolutely silent clinically throughout their entire course it means that we must rely on the perfection of our routine investigation to increase our diagnostic average. Therefore, the necessity for an intensive gastro-intestinal routine in all cases of pulmonary tuberculosis.

Briefly, the situation at Parkview Hospital is as follows:

The staff has recently been changed, and we have not had as yet the equipment to do the thorough work which we are planning to do. Parkview has been running at full capacity, which is about 120 beds.

In analyzing the cases superficially from the gastro-intestinal standpoint there were twenty-

one who have a history of some form of gastro-intestinal trouble. These symptoms might be classified under the headings of loss of appetite, poor digestion, sour stomach, nausea, vomiting, constipation, diarrhea, with or without blood, abdominal pain and associated, to some degree at least, with taking of meals. Of these twenty-one cases two had tuberculosis peritonitis, which in one was verified by operation. Nine had a history which was long enough continued and the severity of symptoms sufficient to make a fairly definite clinical diagnosis of tuberculous enteritis. In these symptoms, I include nausea and vomiting associated with either severe and more or less continuous constipation and diarrhea and some form of abdominal pain which was over a long enough period to suggest an organic lesion. Of these cases five showed constipation and four diarrhea. In addition to this there were three cases which were suspicious of some organic gastro-intestinal lesion.

These figures check up rather closely with the reports of other men in institutions where they take cases of a similar degree of involvement, and indicate the necessity of thorough gastro-enterological study in all cases of tuberculosis, whether they have gastro-intestinal symptoms or not.

In conclusion, a review of the literature impresses one that tuberculosis of the intestine is recognized clinically in a small percentage of cases, that, where present, it is the most important factor in the prognosis, therefore its recognition at the earliest possible moment is imperative. This can be done only by the most intensive study of each individual case with this condition constantly in mind.

#### REFERENCES

- The Status of Present-Day Methods of Examination in the Diagnosis of Intestinal Tuberculosis. Willis S. Lemon, *Minnesota Medicine*, 1923, vol. vi, p. 300.  
 The Diagnosis and Treatment of Intestinal Tuberculosis. Dr. R. O. Brown, *Southwestern Medicine*, 1923, vol. vii, p. 65.  
 Tuberculosis of the Intestine: The Ulcerative Form as a Phase of Pulmonary Tuberculosis. Dr. A. Stewart, Ninette, Manitoba (reprint).  
 Tuberculosis of the Intestines. H. Schwatt, *American Review of Tuberculosis*, 1923, vol. viii, p. 9.  
 Tuberculous Enterocolitis. Willis S. Lemon, M.B., *Minnesota Medicine*, 1923, vol. vi, p. 572.

#### X-RAY FINDINGS IN TUBERCULOUS CHILDREN

By R. W. MORSE, M.D.

Consulting Roentgenologist Lymanhurst School and Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

Pulmonary tuberculosis in children is of two types:

1. The adult type of tuberculosis, which is so called because it is rarely seen before the age of puberty. This is generally considered the second tuberculous infection.

2. The primary infection. This includes the primary pulmonary focus and the secondary involvement of the intrapulmonary lymph nodes and the lymph glands at the roots of the lungs. This type of infection occurs before the age of puberty in approximately 90 per cent of the urban population. It is this type of pulmonary tuberculosis which forms the most difficult problem of childhood tuberculosis. Whatever aid the  $x$ -ray examination gives to the study of this problem is only a small part of the work necessary in establishing the true relation of the infection to the illness of children.

First let us consider the primary pulmonary focus. If there is a massive infection resulting in a lobular or lobar tuberculous pneumonia, its demonstration by  $x$ -ray examination is easy. I say this with one qualification. X-ray plates of the chest must always be absolutely free from movement. The securing of such plates, particularly in young children, is often a difficult task.

The great majority of cases, however, have only a slight infection, which is not accompanied by symptoms or the symptoms are not noticed. We do not have the opportunity to study these cases during the period of latency before symptoms develop.

These smaller primary foci have apparently a great tendency to rapid healing. The usual end-result is calcification of the involved area. There may, however, be a complete disappearance of the lesion, or the residual changes will be so slight that they cannot be identified on the  $x$ -ray plate.

From the primary focus the infection almost invariably passes by way of the lymphatics to the hilus glands. There results an enlargement of these glands, the degree of enlargement depending upon the severity of the infection and the resistance of the host. Massive enlargement of the hilus glands is usually seen only in the younger children.

It is at this stage of the disease that symptoms usually develop. But even so, in the great majority of cases there is a tendency to rapid healing. This is shown by the fact that almost all individuals by the time they have reached adult life have a tuberculous infection of the hilus glands secondary to a primary pulmonary focus. Yet how few have a serious illness during child-

hood which can be ascribed to this tuberculous infection.

Two questions naturally present themselves:

1. With what degree of surety can we state from the  $x$ -ray examination of the chest that there has been infection with the tubercle bacillus?

The presence of a calcified primary focus is conclusive proof.

In children the presence of calcium in the intrapulmonary lymph nodes and hilus glands is very suggestive evidence of a tuberculous infection.

The presence of non-calcified area of pulmonary infiltration is not pathognomonic of tuberculosis unless there is a massive enlargement of the hilus glands.

A massive enlargement of the hilus glands which gives a dense homogeneous shadow is highly suggestive of a tuberculous involvement which has undergone caseation. These changes are usually accompanied by a demonstrable pulmonary focus.

A slight enlargement of the hilus glands without calcification may be secondary to any type of pulmonary or bronchial infection.

2. Can one from the changes visualized on the  $x$ -ray plate deduce with any surety that the changes are productive of symptoms?

A definite, non-calcified pulmonary infiltration should always be considered as capable of producing symptoms.

A massive enlargement of the hilus glands without marked calcification should also be considered the site of an active infection.

Cases showing these changes are, however, only a small minority. The great majority of cases show a calcified primary focus, or a slight enlargement of the hilus glands with a slight or moderate deposit of calcium. In these cases, although we have the evidence of a tuberculous infection, the  $x$ -ray examination is unable to give any evidence as to its clinical importance.

## THE HEART AND TUBERCULOSIS

By THOMAS ZISKIN, M.D.

Cardiologist, Parkview Sanatorium and Lymanhurst School  
MINNEAPOLIS, MINNESOTA

The relationship between heart disease and tuberculosis has been a subject of great interest for many years. As far back as 1844 Rokitsansky made the assertion that diseases of the heart and blood vessels which produced a passive congestion of the lungs were a preventive of tuberculosis. Since then this fact has been confirmed by various authors.



Norris collected from the literature records covering 8,154 autopsies on tuberculous subjects where only 293, or 3.5 per cent, showed signs of valvular heart disease. Brown collected figures of 7,115 autopsies with but 0.9 per cent of valvular heart disease.

Mitral stenosis is less frequently associated with phthisis than other valvular lesions. This is probably due to the fact that in mitral stenosis there is a direct mechanical impediment to the pulmonary circulation. It has been observed, however, that pulmonary stenosis and other forms of congenital heart disease which produce a relative anemia of the lungs do predispose to tuberculosis.

Norris tabulated 449 cases of pulmonary stenosis from the literature and found that 150, or 33 per cent, were associated with tuberculosis.

Bier's method of treatment of tuberculosis in other parts of the body by hyperemia was based on the fact that in pulmonary stenosis where there is an anemia of the lungs, tuberculosis was frequently found, while in other valvular diseases of the heart where there was a hyperemia, tuberculosis was rarely found.

Various theories have been advanced as to the cause of this relationship between heart disease and phthisis. One theory is that the venous congestion in the lungs affords a greater oxygen supply in the venous blood, and in this way prevents the development of tuberculosis. Another is that congestion of the lungs produces an increased dilatation and tortuosity of the capillaries causing them to project into the alveoli. This in turn brings about an increased transudation of serum, and this is followed by a slight cell proliferation with hypertrophy of the fibrous and muscular tissues of the alveoli.

Hess and others have made the assertion that the resistance of the lung is proportional to the amount of fibrous tissue present. Perhaps that is why tuberculosis also is rarely associated with pulmonary emphysema and bronchial asthma.

Levinson and Peterson have recently performed a series of experiments for the purpose of ascertaining the effect of passive congestion of the liver on tubercle formation. They injected into the ear vein of rabbits 0.5 c.c. of liquid petrolatum twice a week for a period of one month, thereby producing a passive congestion in the lungs and the abdominal viscera. They divided the rabbits into three groups. One group was inoculated with tubercle bacilli before receiving the oil injection; a second group received the oil injection before and after inoculation; and a third group

was used as a control receiving no oil but merely an inoculation with the same dose of tubercle bacilli as the other two groups. Their results showed no striking differences between the treated and control animals as to the quantitative distribution or size of tubercles in the liver. There was a greater deposit of fibrous tissue around and within the tubercles in animals that received oil before and after being injected with tubercle bacilli, less in the animals that received oil after the injection of tubercle bacilli, and least in the control animals. Lungs of the rabbits receiving oil before the injection of tubercle bacilli, however, were relatively free from tubercles; while the lungs of the animals receiving oil after the injection of the tubercle bacilli showed some tubercles, and the lungs of the control animals showed the most tubercles.

These experiments tend to prove the assertions that the congestion in the lungs, together with the resulting increase of fibrous tissue of the alveoli, acts as a preventive of tuberculosis.

Tuberculous endocarditis and tuberculous myocarditis are very rare, but pericarditis, especially the chronic form, is frequently due to tuberculosis.

While heart disease itself is rarely associated with phthisis, cardiac symptoms, however, are very common and are perhaps the first to appear in active tuberculosis and the last to disappear.

Tuberculosis, being an infectious disease, gives origin to toxins which gain access to the blood stream and affect the body as a whole. These toxins act primarily on the nervous and endocrine systems by stimulating the sympathetic nerves and the glands of internal secretion, resulting in an acceleration of the heart action and a disturbance of the vasomotor equilibrium. The continual action of the toxins causes degenerative changes in the myocardium with a gradual decrease in the reserve strength. The result is that the heart is less able to cope with the demands made upon it.

Changes in the position of the heart may also interfere with its function. Pleuropericardial adhesions may pull the heart over to one side or the other. Pathologic changes in the lung tissue causing contractions of the lung may result in a shifting of the heart to the space formed as a result of the contracted lung.

From the presentation of these few factors, which tend to affect the efficiency of the circulatory system, it is obvious that the problem of the heart in tuberculosis is not so much a problem of the heart, but of the disease itself.

## REFERENCES

- Rokitansky: *Handbuch der Pathologischen Anatomie*, 2:520, 1844.  
 Norris: *Tuberculosis and Heart Disease*, *Am. Jour. Med. Sci.*, cxxviii, 649, 1904.  
 Brown: *Ibid*, cxxxvii, 186.  
 Levinson, S. A. and Peterson, W. F.: *The Effect of Passive Hyperemia of the Liver on Tubercle Formation*, *Jour. of the A. M. A.*, 87, 9, p. 723, September 1, 1923.

## SURGERY OF THE TUBERCULOUS PATIENT

By S. R. MAXEINER, M.D.

Associate Surgeon, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

Not infrequently one is called upon to perform surgical operations upon a tuberculous patient. Many of these patients are poor surgical risks and have already suffered from long illnesses. Some of these cases present difficult problems in the way of management. I have chosen to report three such cases successfully handled and to draw particular attention to three points in their treatment.

CASE 1.—J. A. B., male, aged 27, married.

Family history, negative; previous illness, negative. In 1918 the patient first noticed a swelling of the left epididymis and later of the right, which broke down and discharged pus. In April, 1923, his condition was diagnosed bi-lateral tuberculous epididymitis. Under local anesthesia left epididymectomy was done, together with resection of the left testicle. Free pus was encountered, but the wound was closed without drainage and healed primarily. Two months later the other side was similarly operated on. The patient has gained fifteen pounds in weight and is much improved in general health.

CASE 2.—A. N., aged 24, single. Family history, negative; previous history, negative. For five years he complained of a gradually increasing swelling of the glands of both sides of the neck. Both sides were operated on in 1921. In May, 1922, the patient complained of a recurrent swelling of the glands on the right side.

Diagnosis: Tuberculous glands of the neck, right, recurrent.

Under local anesthesia both anterior and posterior triangles were re-operated on. Caseating glands and tuberculous pus were encountered, but the wound was iodized, closed without drainage, and healed primarily. Under careful post-operative management, including heliotherapy, this patient has greatly improved in health.

CASE 3.—S. D., aged 28, male, single. Family history, negative.

Patient had pneumonia and was gassed in France. He came under my care after twenty-two months of treatment for active pulmonary tuberculosis, having had artificial pneumothorax induced about seventy-five times. He had recently become acutely ill and developed a pyopneumothorax on the treated side. Examination of the aspirated fluid showed pus, streptococci, staphylococci, and tubercle bacilli. In-

tercostally closed drainage with negative pressure was introduced, and the pleural cavity was irrigated every two hours with Dakin's solution. The pus and pyogenic organisms promptly disappeared from the secretions, and twenty-three days later the tube was removed. The patient has remained afebrile; there is no persistent sinus; and he is gaining in weight. I wish to call attention particularly to three points of technic employed in the management of these cases.

1. Local anesthesia was employed in all three cases, and I believe it is especially applicable to surgery in the tuberculous patient.

2. Primary closure of tuberculous wounds, even in the presence of tuberculous pus, was employed with primary healing in every instance.

3. Intercostal drainage with negative pressure and Dakin's irrigations rendered sterile the secretions of this tuberculous, pyopneumothorax, so that rib resection was not necessary, and a resultant long standing or even permanent pleural fistula was avoided.

## SURGERY IN TUBERCULOUS PERITONITIS

By RICHARD R. CRANMER, M.D.

Associate Surgeon, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

Tuberculous peritonitis may be primary or secondary; it may be mild or severe; and it may also vary as to type. All these variations influence the treatment; for example, surgical interference is obviously contra-indicated if there is a very active process elsewhere in the body, or if the patient is so impoverished physically as to render an operation dangerous. And, again, the various types of tuberculous peritonitis respond differently to surgical treatment.

In reviewing the literature on this subject, one finds that the question of operation has been much debated, but that, in suitable cases, great benefit has resulted from operation.

It may be stated as generally agreed (1) that operation is contra-indicated in generalized or wide spread tuberculosis, therefore in infants under twelve months of age and in patients with signs of extremely active pulmonary tuberculosis; (2) that it is unnecessary in the plastic type unless there is evidence of intestinal obstruction; (3) that it is necessary in abscess formation and in intestinal obstruction.

From the point of view of surgical interference in this disease, the following classification of the principal types of the affection is important.

1. *The serous type*.—Here the inflamed peritoneal sac and its contents are studded with grey granulations. The fluid is straw colored and



usually clear. The fluid may be encysted or general.

2. *The plastic type.*—This is the rarest, but a favorable variety. Caseation is absent, and the fluid present is scanty. The omentum and mesentery are densely infiltrated. Saculations are numerous, due to bands of fibrous tissue which run in all directions binding loops of bowel and other viscera to each other and to the abdominal wall.

3. *The caseating or purulent type.*—This is similar to the plastic type with the exception that here pus is found encysted and in many collections. Caseation is present at times in the dry stage.

It is most important that operation be undertaken before the vitality of the patient has been much diminished by general failure of nutrition or tuberculous involvement elsewhere in the body, in order that the effect of the operation itself may be quickly recovered from. For the advanced stages the shock alone of the operation may be sufficient to bring about a fatal result or, at least, to hasten the end.

Sir Watson Cheyne's advice on this point is that in practically all cases where improvement does not follow under medical treatment after a reasonable time, say in from four to six weeks, the abdomen should be opened, whether there be serous fluid present or not. The operation may do good in cases where it is least expected to do so, and it is seldom that it can do any real harm.

The most favorable cases are those belonging to the serous type where there is free fluid and few adhesions.

The plastic type is also favorable for operation, but the caseating and purulent types are distinctly unfavorable. Here the operation may do harm, for adhesions are numerous and the bowel wall much thinned. The result of manipulation is, frequently, the production of one or more fecal fistulæ, with perhaps the setting up of acute suppuration. However, some cases of this type of the disease have been benefited by surgery.

#### OPERATION

In opening the abdomen it is best to make the incision below the umbilicus through the right rectus sheath and near the median line, displacing the right rectus muscle outwards. Through this incision the appendix, cecum, Fallopian tubes, small bowel, and mesenteric glands can be explored and dealt with and the wound closed without the possibility of a post-operative hernia.

The fluid should be removed by an ejector. Where the fluid is loculated by adhesions the separate loculi may be made to communicate by gently breaking through such of the adhesions as may be necessary. No extensive disturbance of the adhesions beyond this is advisable. The exposure to sunlight and air is the essential thing, and some time should be used in allowing the air and sunshine to come in contact with as much of the peritoneal surface as possible. In some cases the primary seat of infection is obvious, and in these cases it should be removed. The primary seat is most frequently found to be in the Fallopian tubes, appendix, cecum, or mesenteric glands. W. S. Lemon, of Rochester, in a recent publication states, however, that the primary seat is probably never in the mesenteric glands, but that the mesenteric gland enlargement is usually secondary to tuberculous enterocolitis with small ulceration of the mucosa near the site of the mesenteric gland enlargement.

When the cecum is the primary site of the disease it should be resected, or, if the condition of the patient does not warrant such a radical procedure, short-circuiting should be performed, the ileum being divided about four inches from the cecum and anastomosed with the sigmoid.

There is usually no indication for drainage except when the condition is of the purulent type, in which event small soft tube-drains or cigarette drains may be used. If the condition is of the plastic type great care must be used in separating adhesions, for the walls of the intestines are frequently thinned and softened by the disease, and any roughness in handling may result in the formation of fecal fistulæ. The advantage of laparotomy over simple tapping is that a local focus which may be present and which may give rise to reinfection can be removed. (Mayo.)

Licini advocates that only the cases be brought to the surgeon in which no impression was made by medical treatment because undue persistence in purely medical treatment may reduce the patient to such state of exhaustion as to render questionable the efficacy of surgical treatment.

Te'Moin says that when peritonitis is the first manifestation of tuberculosis a permanent cure can be obtained in 80 per cent of the cases, but such results cannot naturally be expected when it develops as a complication of pulmonary tuberculosis. Even then, however, laparotomy may cure the peritonitis and consequently be a valuable adjuvant to the medical treatment. This writer has noticed that the best results were

had when there was good sunlight at the time of the operation and now makes a rule of operating on such cases only in bright sunlight and of allowing the direct rays into the peritoneal cavity. Some favorable reports have been made concerning the combined use of laparotomy and the Mercury Quarts Vapor lamp, which has proven of such valuable service in the treatment of surgical tuberculosis elsewhere, but the reports are too meager, as yet, to be conclusive.

Halstead states that one can expect cures in from 40 to 50 per cent of cases of the serous type and in about 25 per cent of the plastic type. In good operative risks, where the condition is purely of the serous type, the lesser peritoneal cavity should be exposed to sunlight, the opening being made through the transverse mesocolon. The opening should be sutured before closing the abdomen.

Local anesthesia is ideal in cases suffering from this wasting disease. They are frequently approaching acidosis, and the slightest shock, such as might be brought about by ether or chloroform anesthesia, might be the deciding factor against a favorable outcome. Not only is local anesthesia less shock-producing, but the patient can more quickly be put upon a supporting diet, which is a thing to be especially desired in these cases. If some general anesthesia is necessary to supplement the local, the analgesic stage of nitrous oxide should be used, as Crile advises.

#### CONCLUSIONS

1. From 40 to 50 per cent of tuberculous peritonitis of the serous type can be cured by laparotomy.

2. It is not best to wait too long before surgical treatment, for the patient might develop complications that would render operation useless.

3. Great care should be used in separating adhesions in the plastic and purulent types as obstinate fecal fistulæ might result.

4. The patient after operation should be given the same general treatment as any other case of tuberculosis.

5. Local anesthesia is the anesthesia of choice.

6. The primary site of the process in the abdomen should be removed if the patient's physical condition warrants it.

7. The ultraviolet ray promises to be of great value in conjunction with laparotomy.

#### REFERENCES

1. Sajous' Cyclopedia, vol. vii, p. 392.
2. Te'Moin: Surgical Treatment of Tuberculous Peritonitis. *Bulln Acad. de Med.*, Paris, October 10, 1922.
3. Cesare Licini: Laparotomy in Tuberculous Peritonitis. *Morgagni*, Milan, October 31, 1922.
4. W. S. Lemon: *Minnesota Medicine*, vi, No. 10, p. 572.

### TUBERCULOSIS PERICARDITIS

BY LEO G. RIGLER, M.D.

Röntgenologist, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

Tuberculous pericarditis, as a clinical entity in itself, is so rare a condition that the recent observation of such a case aroused an interest in this disease. From the pathological standpoint, the following phases present themselves for consideration: first, tuberculosis of the pericardium, that is, the actual presence of tubercles in or on the pericardial sac; second, tuberculous pericarditis, that is, the inflammatory reaction in the pericardium from the tuberculous toxin; third, pericarditis in the tuberculous, that is, all types of pericardial pathology which may occur in a patient with tuberculosis. The last named phase needs little consideration here except to point out that most of these cases would prove to be tuberculous if careful pathological examinations were made.

The determination of the incidence of tuberculous pericarditis is rendered inaccurate because of the unreliability of ordinary post-mortem statistics. Grossly, it is often very difficult to recognize tuberculosis in the pericardium; and even microscopically, at times, tuberculous lesions may be overlooked. Fromberg<sup>1</sup> reports a case in which tubercle bacilli were found in the pericardial tissues although there was no histological evidence of tuberculosis. In addition, the question as to whether or not pericarditis of the ordinary chronic adhesive type, without histological evidence of tuberculosis, may be caused by the toxin of the tubercle bacillus, has never been satisfactorily answered. Many pathologists, particularly Wells,<sup>2</sup> believe that the tuberculous toxin may produce an inflammatory pericarditis, just as it does a pleuritis, and there is considerable support for the theory that most chronic adhesive pleuritis and pericarditis, where other sources of infection are absent, is of tuberculous origin. (It is noteworthy that a much higher percentage of tuberculous pericarditis than is usually given, has been found by every pathologist who has made a particular study of the problem.)

The most complete statistics are those of



Norris,<sup>3</sup> who found 4 per cent of 755 cases of pericarditis, at autopsy on all types of patients, to be tuberculous, all doubtful cases having been omitted. These figures are very conservative. In 1780 autopsies on tuberculous patients 5 per cent were found to have definite tuberculous pericarditis. Breitung,<sup>4</sup> in 324 cases of pericarditis, shown at autopsy, found 7.5 per cent to be secondarily tuberculous and 0.5 per cent to be primarily tuberculous. Hirschfelder<sup>5</sup> reports that 1 per cent of the cases admitted to the medical wards of the Johns Hopkins Hospital had pericarditis, and of these 10 per cent were tuberculous. This is, however, a clinical report. A brief examination of the autopsy records of 3,000 cases from the files of the Pathological Department of the University of Minnesota reveals 138 cases of definite pericarditis, of which 12, or 8.7 per cent, were tuberculous. If the cases are separated into acute and chronic forms the incidence is found to be decidedly different. There were 83 cases of acute pericarditis of which 2, or 2.4 per cent, were tuberculous. There were 55 cases of chronic pericarditis of which 10, or 18.2 per cent, were tuberculous. Brooks and Lippincott<sup>6</sup> report 61 cases of chronic adhesive pericarditis, of which 17, or 27.8 per cent, were tuberculous. Thus it is shown that, conservatively, from 18 to 27 per cent of all cases of chronic pericarditis are tuberculous, and that 5 per cent of tuberculous patients have tuberculous pericarditis.

The pericardium is a frequent location for tuberculosis in the aged, and in these cases it occurs without any other signs of tuberculosis.<sup>7</sup> It may occur at any age, though it is uncommon in the first decade. The small blood supply of the pericardium, no doubt, accounts for the infrequency with which miliary tubercles occur upon it, and for the fact that it is affected by tuberculosis less often than the pleura or peritoneum. Primary tuberculosis of the pericardium is, undoubtedly, very rare, if, indeed, it actually exists. Scagliosi<sup>7</sup> is said to have collected 8 cases. Riesman<sup>8</sup> has reported an authentic case, but it is so uncommon that it needs hardly to be considered. As a secondary infection it may be blood borne from tuberculosis in other parts of the body; it may be the result of direct extension from the lungs, pleura, or neighboring glands; or it may be part of a general miliary tuberculosis. The most frequent source of infection of the pericardium, no doubt, is a caseating mediastinal gland.

Both acute and chronic forms exist, but the

former are not important clinically, as they are overshadowed by tuberculosis which exists elsewhere. All the various forms of pericarditis may be caused by tuberculosis; namely, fibrinous, serofibrinous, purulent, hemorrhagic, chronic adhesive, and, in addition, miliary. The most common forms are the chronic adhesive type and those with a chronic effusion, which is often hemorrhagic and may be purulent. The chronic adhesive types may go on to complete obliteration of the pericardial sac, while the effusions, if non-purulent, may absorb, with adhesions always resulting. Rarely, calcification of the pericardium may occur as an end-result.

Even more frequently than in the other forms of pericarditis, the tuberculous type is overlooked clinically. This is due to its insidious onset and comparatively symptomless course, the cardiac symptoms, which are so prominent in the rheumatic types, being often lacking. It is not possible here to discuss the symptoms and signs of pericarditis. It is of importance, however, to indicate the factors which distinguish chronic tuberculous pericarditis from the chronic rheumatic type. In addition to the insidious onset, the tuberculous type is characterized by its extreme chronicity, lack of high temperature, or violent symptoms. The cardiac hypertrophy and associated endocardial pathology, which are so characteristic of the rheumatic type, are usually lacking. The heart tones and the apex beat are diminished in intensity, palpitation is not common; all of which is in contrast to the rheumatic type. In the latter a history of arthritis or other infectious etiology is usually forthcoming. In the tuberculous form there is usually a history of tuberculosis, or evidence of it elsewhere in the body. The usual symptoms of tuberculosis are present. In the cases with effusion, the failure of the effusion to absorb after a long period of time is in contrast to the rheumatic cases, in which the effusions usually absorb very rapidly. Diagnostic puncture of the pericardium is of great value. Tuberculous effusions tend to be hemorrhagic, and the presence of sanguinolent fluid, is of great diagnostic importance. The bacilli are found uncommonly, but the injection of the fluid into a guinea pig yields a much higher percentage of positive tuberculosis than the injection of pleural effusions. Cardiac failure is very uncommon, death ordinarily being due to tuberculosis. The differential diagnosis of fibrinous, tuberculous pericarditis from the so-called uremic type may present some difficulty at times, but the clinical

and laboratory picture of uremia usually makes the diagnosis certain. Given a case of pericarditis in which there is a long-protracted, relatively symptomless course, if the cardiac symptoms are not prominent, the signs of a low-grade toxemia are present, and tuberculosis elsewhere is found, the diagnosis can easily be made. In the case referred to above, the diagnosis was made before the finding of pulmonary involvement, on the basis of the chronicity and mildness of the course of the disease.

The importance of this condition is twofold: it may be the only symptom or sign of tuberculosis, thus calling attention to this disease in a patient in whom it was not suspected; or it may have an important and unfavorable bearing upon the course of an ordinary case of phthisis.

The cases with effusion particularly may suffer toxic symptoms, especially when the effusion is purulent. The average length of life of a patient with a purulent, tuberculous, pericardial effusion, is four to eight months. The prognosis in any event is poor, the process going on to extensive, adhesive pericarditis or death. The treatment in general should include the ordinary hygienic treatment of tuberculosis in other parts of the body. Removal of the effusion, if present, is more advisable than in the rheumatic cases, as it may become tremendous in size. In one case it was reported that 4,000 c.c. of hemorrhagic fluid were found in the pericardium.<sup>3</sup> The most interesting feature of the treatment has been contributed by Wenckebach,<sup>9</sup> who injected air or oxygen into the pericardial sac, after the removal of the fluid,<sup>4</sup> just as in artificial pneumothorax. He reported a considerable degree of success in one case, and it has been used at rare intervals since by others. Hansen<sup>10</sup> reported an apparent cure by this method. As originally proposed the gas was given to prevent adhesions, but the curative effect of oxygen upon tuberculous, serous surfaces is well known, and it is possible that a cure might be obtained. It has not, of course, been used sufficiently to determine its actual efficacy.

#### SUMMARY

Tuberculous pericarditis is more common than is generally supposed, occurring as a complication in 5 per cent of all tuberculous patients and comprising from 18 per cent to 27 per cent of all cases of chronic pericarditis. It is characterized chiefly by the chronicity of its course and its comparative lack of cardiac symptoms. Aside from the ordinary treatment of tubercu-

losis, the injection of air or oxygen into the pericardial sac after the removal of fluid, is said to be efficacious.

#### BIBLIOGRAPHY

1. Fromberg: *Deutsche Med. Woch.*, 39, 1539, 1913.
2. Wells: *Am. Jour. Med. Sciences*, 123, 241, 1902.
3. Norris: *Cardiac Pathology*, Philadelphia, 1911.
4. Breitung: Quoted from Norris (above).
5. Hirschfelder: *Diseases of Heart and Aorta*, New York, 1918.
6. Brooks and Lippincott: *Am. Jour. Med. Sciences*, 138, 796, 1909.
7. Wolff: *Beit. z. Klin. d. Tuberkulose*, 30, 131, 1914.
8. Riesman: *Am. Jour. Med. Sciences*, 122, 6, 1901.
9. Wenckebach: *Deutsche Arch. f. Klin. Med.*, 71, 402, 1910.
10. Hansen: *Ugeskrift f. Laeger*, 78, 1166, 1916.

### THE VITAL CAPACITY TEST IN SO-CALLED PERIBRONCHIAL TUBERCULOSIS AND IN PERIBRONCHIAL TUBERCULOSIS COMPLICATED BY BRONCHITIS AND PLEURISY: A PRELIMINARY REPORT\*

By L. H. CADY, B.A., M.D.

Associate Physician, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

The readings reported in this study have been prepared from records of examinations made by Myers, of Minnesota, on a series of young, adult men. Röntgenographic reports were available for all cases. The vital capacity readings were made with a Sanborn spirometer, the highest of at least three trials being used. Percentages were determined in terms of body weight from tables prepared by Myers using the formulæ of Dreyer.<sup>1</sup>

The object of the paper is to study what effect the findings described in the röntgenographic reports as peribronchial tuberculosis or peribronchial infiltration may have on vital capacity. For this purpose the cases studied were arranged in three groups. In the first series only those cases were listed in which peribronchial infiltration, but no other lung pathology, was demonstrated. Two other groups of cases were listed separately in which a diagnosis of bronchitis or pleurisy was made in addition to findings reported as peribronchial tuberculosis or peribronchial infiltration.

In the group reported as peribronchial tuberculosis or peribronchial infiltration, there were found to be 93 cases having an average vital capacity of 103.7 per cent. The median of these cases was 104 per cent. The age of the group averaged 27.3 years with a minimum-maximum range of 17-43 years. The median reading of

\*From the Department of Preventive Medicine and Public Health, University of Minnesota



this and the following groups was determined with the view that it might be more accurate especially in the smaller groups. It will be seen, however, that the median readings compare closely with the averages in all cases.

In the series of 25 cases in which a clinical diagnosis of probable bronchitis was made in addition to the *x*-ray report of peribronchial tuberculosis or peribronchial infiltration, a reduction of the vital capacity percentage is seen, the average for this group being 99 per cent. A still further reduction to an average of 92 per cent is found in the eleven cases of pleurisy with peribronchial tuberculosis.

It will be noted that the average of readings from cases reported as peribronchial tuberculosis or peribronchial infiltration is over 100 per cent of normal according to the English standards of Dreyer. Myers has cited the suggestion of Dreyer that normal standards be determined for various localities.<sup>2</sup> It is hoped that at some future time a series may be published with standards determined from a group comparable in age, occupation, and locality to those here presented.

#### SUMMARY

#### PERCENTAGE OF VITAL CAPACITY BY WEIGHT

	Peribronchial tuberculosis	Peribronchial tuberculosis and bronchitis.	Peribronchial tuberculosis and pleurisy.
Number of cases	93	25	11
Average vital capacity	103.7%	99%	92%
Median	104%	98%	90%
Highest vital capacity	131%	131%	112%
Lowest vital capacity	84%	70%	62%
Average age	27.3	27.3	26
Median age	27	26	27
Age limits	17-43	22-27	21-29

1. This study includes 93 cases in which a report of peribronchial tuberculosis or of peribronchial infiltration had been made. The average vital capacity for the group was 103.7 per cent as determined from the body weight.

2. In 25 additional cases suffering from bronchitis the vital capacity was reduced to 99 per cent.

3. Eleven cases with reports of peribronchial tuberculosis or peribronchial infiltration with a diagnosis of pleurisy showed an average vital capacity of 92 per cent.

4. The average age for all groups was 27 years.

5. All the cases reported in this series are

accompanied by reports of stereoscopic *x*-ray plates.

6. The available normal standards are felt to be not strictly comparable to the group here presented.

#### REFERENCES

1. Myers, J. A.: Studies on the Respiratory Organs in Health and Disease, VIII. A method for quickly determining the percentage of an individual's theoretical normal vital capacity of the lungs. *Am. Rev. Tuberculosis*, 1923, vii, 161.
2. Myers, J. A.: Studies on the Respiratory Organs in Health and Disease, VI. The significance of the vital capacity test in pulmonary tuberculosis, bronchial asthma, pneumonia and an acute infection outside the respiratory tract. *Arch. Int. Med.*, 1922, xxx, 648.

#### TUBERCULOSIS OF FEMALE GENERATIVE ORGANS

By H. B. DORNBLASER, M.D.

Gynecologist, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

Tuberculosis of the female generative organs is not always easy to diagnose. First, let us consider the conditions producing ulcers of the genitalia.

Tuberculous ulcer of the vulva is not markedly infiltrated; the surface is flat and is covered with caseous material. Tubercles are seen on the floor of, and surrounding, the ulcer. The base gives a grey or greenish-yellow color. The edge is irregular, sharp, and sometimes undermined, but mostly perpendicular, and the margin is infiltrated. Scarring is often seen on one side only. The ulcers are practically never primary, but are most frequently secondary to tuberculosis of some other portion of the body, for example, the lungs or the genitals, and spread by continuity through the blood or lymph vessels, by contamination of the fingers or linen, or through the stools. The ulcers are usually single. Tuberculous ulcers are very rare in adults and somewhat more common among children.

These ulcers are confounded with those due to cancer, and syphilis, and they also have to be differentiated from rodent ulcers.

In cancer there is marked infiltration of the edges, the floor, and deeper tissues. The floor is rough and nodular, ragged and moderately deep. Grey, degenerated spots dot the bright red surface. The edges are sharply outlined and are rigid and hard. Very frequently the ulcers are found in the connective tissue of the labia or urinary meatus. Metastases to the region near the tumor are rare, but the lymphatics are involved in older cases. The ulcer is usually single.

Primary syphilitic ulcers show infiltration of

the edges and base, feeling cartilaginous and disk-like; the surface is smooth and is at or above the level of the surrounding tissues. It exudes a serum, and does not form granulations. The color is a dull, dark, or dirty-brownish red. As a rule the edges are punched out but may be sloping, sharply outlined, and rarely edematous. The lymph glands surrounding the ulcer are enlarged and shotty. They are discrete. The healed ulcer shows scarring. A chancre is usually solitary, but may be multiple. The structures most often involved in the order of their frequency are (1) *libia majora*, (2) *fourchet*, (3) *libia minora*, (4) *clitoris*, *mons veneris*, (5) *urinary meatus*, (6) *introitus*. These lesions are not painful and appear after an incubation period of from three to five weeks.

Induration gradually appears in a chancroid. It is rather punched out in appearance, and the surface is inflamed and sloughing. There is no induration, and purulent granulations are often bathed in a pus-like discharge. The edges are sometimes undermined so that a distinct rim may be lacking. The lymph glands of the region are soft and tend to suppurate. There is a tendency for these ulcers to be multiplied, and appear a few days after infection.

There is rigidity of the tissues surrounding a rodent ulcer. The surface is flat, smooth, and shining, or it may be covered with exudate. Often deep fistulæ run from it into the surrounding tissues. It is a bright-red color, the edges are sharp, eroded, and often deeply undermined. As one side heals, the ulcerative process advances on another, and this accounts for the radiating scars. They often cause ectropion of urethra and vulva. The most common sites are the *fossa navicularis*, lesser labia, and clitoris.

Tuberculosis of the cervix may be confused with cancerous ulceration very easily. Tuberculous ulceration is exceedingly rare. The edges are frequently undermined, the floor is yellowish, slightly granular, and uneven, not infiltrated. The ulcers are flat and form a proliferation on both lips of the cervix surrounding the canal. Scattered through it are small, yellow nodules the size of a millet seed between which is caseous, greasy tuberculous neurotic tissue. Under the microscope these areas show tuberculous tissue and tubercle bacilli. There is generally a history of tuberculosis of the tubes or peritoneum.

Decubitus ulcer is seen in cases of prolapse where the cervix is exposed and irritated. It may cover a good deal of the surface of the

cervix. It is irregular in outline and very often does not include the external os. There is a sharp line between it and the normal vaginal m.m. The surface is often covered by a pale yellow exudate with islands of epithelium through the middle and around the edges. The floor does not appear indurated. A few days after the uterus is replaced, the ulcerated surface becomes covered with epithelium.

Chancroids usually produce small, multiple ulcers, which have a slightly indurate and somewhat elevated border. The floor is lardaceous or shows a necrotic membrane, but is not infiltrated. Contact ulcers are frequent, and vaginal and vulval ulcers appear at the same time.

Syphilitic ulceration of the cervix shows itself as the chancre, a solitary wound usually present on the anterior cervical lip. It is a shallow ulcer, hard at the base, and with an indistinct outline. It has a dirty-brown color. Sometimes the floor is covered with a greasy exudate. In *multipartæ* the ulcer may extend far up into the cervical canal.

A gummatous ulcer of the cervix is rather rare. It may be present on the anterior and posterior lip of the cervix and often surrounding the external os. It is elliptical in shape and sharply outlined. It is shallow and somewhat depressed; the floor is usually covered with a pus-like exudate and when this exudate is pulled off it leaves a bleeding surface.

A cancerous growth of the cervix, if of the cauliflower type, projects above the surface from which it springs and is rough. The newly formed tissue is very friable. (Any proliferation above the general level of the mucous membrane in flat tumors is suspicious of cancer.) There is a great hardness of the tissues, being of cartilaginous consistency. The shape of the cervix is distorted becoming "broad and shapeless." The surface has a peculiar blueish tint, and scattered through it are yellow areas, which are cancer nests. It is an ulcer with rough, ragged, and uneven walls surrounded by hard indurated tissue. The edges are sharp and there is a jagged border. The surface is bright red with dark-grey degenerated spots through it, making it granular or nodular. The ulceration extends to a moderate depth, and there is infiltration of the floor.

There are many forms of endometritis, and tuberculous endometritis is not always easy to differentiate. If tuberculous ulcers are found in the vagina or on the cervix, or if the patient is suffering with tuberculosis of any other part of



the body, it may be suspected, but it can be positively diagnosed only when tubercles or tubercle bacilli are demonstrated in uterine scrapings.

Of the organisms causing salpingitis the gonococcus is the greatest offender. It is found in 80 to 85 per cent of tubal inflammations. Streptococci, staphylococci, tubercle bacilli, pneumococci, and actinomyces also have been found living in the tubes.

Gonorrheal infection generally develops after a menstrual period and often soon after marriage. If there are signs of the disease in the lower genitals or a positive gonorrheal history in the husband it helps to establish a diagnosis of the infecting organisms. There is only a small amount of exudate in the parametrium beneath the tube, which helps to differentiate it from other types of infection. Following childbirth the rise of temperature occurs often after the tenth day, is not great, and generally does not last more than a few days. Because this infection is essentially of local character the white count is generally low.

Septic salpingitis is present in 5 to 10 per cent of the cases. With this condition there is a sharp rise of temperature, as in any other pyogenic infection. The parametrium is generally extensively distended with exudate, but in this condition, as in gonorrheal salpingitis, the tubes themselves do not help in diagnosing the infecting organisms.

About 5 per cent of the salpingitides are tuberculous. In this condition the tubes may feel tortuous, nodular, rough, and, if this condition is associated with ascites or with nodules over the peritoneum, the diagnosis of tuberculosis is very probable. The very rare condition of neoplasms of the tubes may also cause these signs. Tuberculosis in the lower genitals or other organs also helps to confirm the diagnosis. If it is very necessary to make a diagnosis, a tuberculine test may be made; aspiration is dangerous and not of great value because in chronic cases the pus is generally sterile.

On some occasions it may be advantageous to differentiate between the contents of a tubal enlargement, especially as to whether pus is present or not. This is very difficult and often impossible.

The tube in hydrosalpingitis is thin walled, shows fluctuation and mobility, and is markedly tortuous while in pyosalpingitis the tube is harder, of smaller caliber, attached by a broad base, is associated with exudates, and is more likely to be sensitive to pressure. A persistent leukocyto-

sis of 15,000 generally means pus, though a 10,000 count may show it.

## REPORT OF A CASE OF CHRONIC MULTIPLE OSTEOMYELITIS

By PAUL W. GIESSLER, M.D.

Orthopedist, Lymanhurst School and Parkview Sanatorium  
MINNEAPOLIS, MINNESOTA

The patient is a woman, aged 24, single.

She was admitted to the General Hospital February 23, 1922. Her most recent occupation was that of a housemaid. She had been employed previously in a factory where she was obliged to do heavy lifting.

Her present complaint was cough, fatigue, and swelling and pain over the dorsal spine.

In the fall of 1921 she had a fall, which resulted in a stiff neck. This stiffness disappeared, but in December a swelling was noticed between the shoulder blades with some deformity and soreness at night. She lost eighteen pounds in two years. She complained of night sweats and frequent colds, but there was no hemoptysis or chest pains. At times there was tenderness in the right iliac region, with pain down the right leg.

Family history: Father living and well; mother died of apoplexy; no history of tuberculosis in the family.

Personal history: Patient is poorly nourished and hyperesthetic. Eyes, ears, nose, and throat are negative. There is cervical adenopathy, a pigeon breast, hyperresonant chest, cyanosis, and clubbing of fingers. Reflexes are normal. There is a swelling to the left of the 3-7 dorsal area the size of a large egg. The 3d-7th dorsal spines are tender. There is slight pain on motion of this area.

Urine is negative. R. B. C. 3,270,000; W. B. C. 6,200. Wassermann is positive. Sputum examination is negative for tubercle bacilli.

The x-ray report shows that the intervertebral outlines of the 4th, 5th, and 6th dorsal vertebrae are not clear and that there is possibly slight bone necrosis present.

The abscess on the back was twice aspirated, the aspirated fluid being cloudy, straw-colored, and containing much sediment of degenerated p. m. ns. and red blood cells, but no bacilli.

A diagnosis of spondylitis, possibly, but not definitely tuberculous, was made.

The patient was put to bed on a hard bed. She ran a temperature of 99° and 100°. Later she was transferred to Parkview. Here the

temperature at first ran 100°-101°, but gradually dropped to 99°. The chest consultant reported a minimal pulmonary tuberculosis. Patient was kept in bed and given heliotherapy. The weight increased from 101 in May, 1922, to 115 in February, 1923. The general condition improved, the back became free from pain, and the abscess gradually disappeared.

In the spring of 1923, swellings developed at the lower end of the right arm. An unsuccessful aspiration was attempted. Later, swellings developed, in order, on the lower part of the left arm, the upper end of the right forearm, and at the upper end of the sternum. X-rays were taken of the entire body. There was still some indistinctness of the 4th and 5th dorsal vertebræ. The lower end of the right humerus, the lower end of the left humerus, and the upper end of the right radius showed thickening of the cortex with several areas of rarefaction and some obliteration of the medulla. The right tibia showed some increase in the cortex. The other bone was curetted, the cortex saucered, gauze swellings were painful and moderately hot.

At three successive times these three places were operated on, under local anesthesia. Free pus was found in the subcutaneous tissue. The periosteum was raised, and part of the cortex was destroyed. Pus was found in the bone. The bone was curetted, the cortex saucered, gauze packing was inserted, and hourly flushings with Dakin's begun. The wounds quickly became clean, the skin and subcutaneous tissue were approximated with adhesive, and the wound healed perfectly. Specimens sent from the operating-room to the laboratory showed granulation tissue with marked p. m. n. and other inflammatory cell invasion and areas of necrosis. No bacteria were found. Guinea-pig injections resulted in negative findings. Two weeks after the last operation the patient was feeling so well that she insisted on going home. Her back was giving no trouble, and the pain had entirely disappeared from the arms and sternum. The swellings were reduced to about half their former size. The patient was instructed to report back in a month. It is still too early to report the final outcome.

In searching through the literature under the heading of chronic multiple osteomyelitis, very few articles were found. Those few reported their cases as rare and, as a rule, it was possible to isolate the staphylococcus pyogenes aureus. Although this organism was not found in the present case, the diagnosis of chronic multiple

osteomyelitis of pyogenic origin has been made, based on the course, the x-ray plates, and the operative and laboratory findings.

The case is interesting because of the nature of its onset, simulating tuberculous spine, its multiple course, the chronicity, and the readiness with which the abscesses cleaned up after curettement. What relation the positive Wassermann plays is not known, as the patient refused antiluetic treatment.

## HOME TREATMENT FOR THE TUBERCULOUS

By H. A. BURNS, M.D.

Associate Physician, Parkview Sanatorium

MINNEAPOLIS, MINNESOTA

The control of communicable disease is observed on the graph as a series of descending steps. These steps are usually quite uniform and are broken, seasonal variation excepted, by the introduction of vaccines, improvement in the protection of water supplies, and the disposal of animal waste.

There is a residual after each horizontal has been reached which will be maintained under ordinary conditions until further discoveries have been applied, or increased efforts at control made.

This is true of the communicable diseases, measles excepted, which have occupied much of the time and effort of health agencies. Tuberculosis does not vary from this general rule; and, while no single great discovery has been made, the descending levels can fairly be said to depend upon the constant co-operative effort of all agencies whose object is tuberculosis control.

The history of the falling death rate during the past twenty years indicates the results following the application of certain factors bearing upon the establishment of new tuberculosis foci, as well as the prolongation of the life of the tuberculous.

The death rate per thousand (tuberculosis all forms) has steadily diminished in the registration area of the United States since 1904, from 202.6 to 114.2:

1904	-	202.6
1908	-	167.6
1912	-	149.7
1916	-	142.1
1917	-	147.1
1918	-	150.2
1919	-	125.6
1920	-	114.2



This achievement has been realized by the application in an imperfect way of the known methods of both treatment and control. The fact that in tuberculosis the reduction in the death rate has extended continuously over a period of years, does not lead one to conclude that the maximum decrease has been reached as a result of the control methods now in use.

The experience obtained during the period when the greatest results have been accomplished points the way to certain refinements that may materially aid in the death rate being pushed to still lower levels.

Methods adopted must be based upon our present knowledge of the disease, its pathology, distribution, geographical and industrial, and the protection of the susceptible.

There is no disease concerning which a greater literature has accumulated, whose pathology has been more completely studied, whose treatment has become more fully standardized, yet whose distribution has become and remained universal.

The diminishing death rate indicates that this knowledge applied to the tuberculosis problem has begun to bear fruit.

The treatment of the tuberculous has occupied much of the time of the profession. The diagnosis of tuberculosis is a modern phase which became permanently a part of the tuberculosis problem following the isolation of the tuberculosis bacilli in 1882. Modern treatment dates from 1859 when Dettweiler established his sanitarium for the treatment of tuberculosis. Since that time the hospitalization of the tuberculous has gradually become the accepted basis for treatment.

However, both economy and the human element prevent the continued hospitalization of every case of active tuberculosis. This fact has made it necessary to include home treatment as a standard procedure. The screening of cases for treatment is one of the difficult problems in the classification and treatment of the disease. The physician in advising the recently diagnosed case, is more than a clinician. He must be conversant with the social conditions of the patient; he must understand the psychology, both of the patient and his family; and, after all else, the physician to the tuberculous must be an economist. He sees an individual ill with tuberculosis, who is about to change his entire procedure of living under the physician's guidance. This future must provide an environment which considers both the treatment of the case and the protection of both immediate contacts and the public.

Through years of living, the sick person has adjusted and re-adjusted himself to an environment which has been successful so far as supplying him with the comforts of life is concerned. However this may be, it has not protected him against the development of the infection, which has finally brought him to a state of chronic partial, if not total, invalidism. The physician takes charge when the environment has failed, and in outlining the immediate future for the patient, he must aid the patient to adjust himself to an environment which is both new and artificial, but which will aid most in combating the extension of the pathology and ultimately in gaining an arrest of the disease and a convalescence from it.

To meet the requirements in the development of such an environment whose objective is to give the tuberculous the most aid, the sanatorium has been created. The sanatorium is not an institution of prevention except in so far as it is a teaching institution, since cases are hospitalized for treatment rather than for the removal of an infected focus from the home.

Paradoxical as it may seem, the isolation of the infected focus must be accomplished in the home. The most significant advance in tuberculosis control in recent years has been accomplished by the U. S. Veterans' Bureau in the assignment of observation wards in general hospitals for the observation and diagnosis of tuberculosis. This is a phase of the tuberculosis problem that should appeal to the specialist, whether clinician or administrator. With the development of the observation ward the truly early case will be sent to the sanatorium, and the sanatorium will be in position to give more attention to the preparation of the patient for continued treatment at home. To provide a bed for each case of tuberculosis would be quite impossible from an economic and administrative point of view, especially in the face of a declining death rate.

To make it possible to cover all cases with a sanatorium environment, home treatment, properly carried out, should follow the institutional treatment. The sanatorium regime should be carried into the home to such a degree that the minimum re-adjustment upon the part of the patient is required. The sanatorium then becomes an institution for training, as well as for treatment. The training, preparatory to home treatment, must not only consider the patient, but must also include the home. A well-trained patient may fail utterly in his home treatment, due

to the fact that the home is not prepared to receive him.

The efficiency of the medical care of the tuberculous is now based upon the arrested cases discharged from the doctor's care. The ultimate end of treatment, however, is not so much in gaining an arrest as it is maintaining an arrested condition. The institution that does not train the quiescent case to take advantage of his victory is failing in its purpose, and the institution that does not fully prepare the case for home treatment and that cannot extend its medical and nursing organization to cover the entire period of sanatorium and home treatment, has not sufficient machinery properly to administer the care of the tuberculous. Home treatment, properly carried out, must consider, first, the possibility of satisfactorily preserving sanatorium regime in the home; secondly, to harbor an infectious disease or one who is potentially infectious without endangering susceptible contacts.

The greatest number of treatment days in each case is usually spent outside of a sanatorium. To provide a home environment, then, is a task that involves many factors, not the least of which is the attitude of the family toward the patient and their willingness and ability to disarrange the home sufficiently for one member to bring the sanatorium regime into the home. Home treatment without the proper organization destroys to a large degree the work already accomplished.

Home treatment following early diagnosis and sanatorium training promises to become a potent factor in the ultimate control of tuberculosis. Before there can be a fulfillment of this promise, it will be necessary for administrative officers, health agencies and clinicians to co-ordinate the work relative to the treatment of the tuberculous after leaving the sanatorium.

With the close co-operation of medical service following the infected individual throughout the course of his disease, rather than during isolated periods of his illness, while visiting dispensaries while hospitalized, the sick individual will be guided to more rapid convalescence with the minimum amount of danger to others. His admission to a sanatorium should be for the purpose of training him to take home treatment in a sane and efficient manner. Home treatment works into the program as a whole as the final chapter in the individual's tuberculosis history. Beginning with the diagnosis as a suspect by the private physician or the dispensary, he is placed in an observation ward for diagnosis,

then transferred to a sanatorium for both treatment and training. As soon as conditions are favorable for home treatment, he is discharged to his home.

The clinical and administrative service rendered the sick individual is not successfully rendered if such service cannot be continued during the period of home treatment. At the present time home treatment in far too many cases means a period of comparative invalidism, during which time the individual follows his own ideas relative to his own care. He is subject to his own optimism and to the whims of his own undisciplined family and acquaintances. As a result, he has forsaken the principles taught him in the sanatorium during the early weeks of his home treatment, and he rapidly sacrifices the advantages gained, while it should be the culmination of dispensary, observation hospital, and sanatorium treatment, and should be continued as a final stage in the treatment of the disease. Home treatment should provide the advantages of the sanatorium plus the home environment which has been denied the patient during the period of his sanatorium treatment.

Because the patient is placed upon his own resources when he is in most need of counsel and guidance, when his convalescence is a constant invitation to overload untrained muscles, and to overwork the circulatory system and lungs, which have been kept at rest, the home treatment of tuberculosis has become in a large majority of cases the tragic treatment of the disease.

What are we to do to remedy this condition is a question that appeals to every official responsible for the care of the tuberculous. The other stages in the treatment and care of the case have been standardized and treatment elevated to a high degree of efficiency except the observation ward and home treatment. The object of all procedure is, in a final analysis, to reduce our death rate. Changes in the care of the tuberculous, as indicated relative to home treatment and early diagnosis, hold out the greatest promise. Of the two, home treatment has the more important place since it is the more urgent and since only changes in the administration of the problem are necessary in perfecting methods of further control.

#### CONCLUSIONS

The tuberculosis program should include an observation hospital for the early diagnosis, dispensaries for the identification of suspected cases, and follow-up of cases on home treatment.



The technic of the diagnosis should not be left to the dispensary or clinic, but should be the responsibility of the observation ward hospital.

Home treatment as at present carried out seldom realizes its purpose in being effective. It

should be a continuation of sanatorium care, plus home environment. The proper co-ordination of the four stages in the treatment of the tuberculous will aid materially in the death rate reaching still lower levels.

## CULTS\*

BY M. A. STERN, M.D.  
SIOUX FALLS, SOUTH DAKOTA

There always have been, and always will be cults differing from scientific medicine. In the past these organizations have succeeded well for a few years, and then have gradually waned, finally passing into near oblivion. They have served their purpose; and scientific medicine, as we know it, has learned something from them.

The public divides the healing art into two general classes:

1. Drugless, as opposed to
2. Medicine and surgery.

### INDIVIDUAL M.D.'S AND INDIVIDUAL CULT MEMBERS

The existence of cult members is unpleasant to most physicians, but, in all fairness, a man well qualified in medicine should be able to ignore the presence of a six, twelve, or eighteen months' graduate of a commercial school. Individual M.D.'s who are not able to hold their clientele against the ever-increasing numbers of the drugless cults, should realize that there is something lacking in their service to the public, and should spur themselves to better understanding of public psychology.

### ORGANIZED CHIROS AND MEDICINE

What makes some cults particularly objectionable is that, not satisfied with proselytizing for patients, they are conducting an organized attack on scientific medicine. By syndicated advertising they are arousing prejudice and creating opposition to standard scientific procedures. That this propaganda is false and misleading it matters not so long as it creates opposition to doctors and medicine. When this is brought to the attention of physicians, they are apt to assert that these drugless cults will die out, as other cults have in the past. This can only be a matter of opinion. We have never had a cult propagating itself by syndicated advertising. The largest percentages of disease are self-limiting. I firmly

believe we shall see the pseudo-doctors continuing to treat this class of cases and neurotics, in the meantime spreading a harmful propaganda that will eventually be manifest in harmful and foolish legislation. As Doctors come in contact largely with patients who are friendly to medicine, and visit only those that employ physicians, they are unaware of the tremendous growth of the drugless cults, amounting in certain localities to an unfavorable public opinion against medicine.

### LEGISLATION AND ORGANIZED MEDICINE

Already many state legislatures are hostile to organized medicine. The cults by pernicious propaganda have created a public sentiment strong enough to select senators and representatives friendly to special cult legislation and hostile to anything sponsored by medicine. In one Northwestern state the sentiment against medicine was so strong that any bill prepared by the State Board of Health was impossible of passage regardless of its merit. It was necessary to ask the State Board of Health, or its friends, to refrain from introducing the bill for the maintenance of the State tuberculosis sanatoriums.

At every legislature bills are coming up to license the uneducated to practice surgery. In South Dakota, at last session, a bill was introduced to declare all hospitals public institutions, and open them to all healing arts. What then is to become of all our constructive legislation on public health, our efforts on hospital standardization, our efforts to better medical education. Not only this: if the public sentiment becomes too unfavorable, this very sentiment will pack our legislatures with enemies who will enact repressive and harmful laws and may try to legislate us out of existence. In the past our experience with other cults has taught us to maintain a dignified silence, and that only time was necessary for the right to triumph over error and foolishness. It is now time to depart from this tradi-

\*Presented before Seventh District (S. D.) Medical Society, at Sioux Falls, S. D.

tion. Changing conditions have made it imperative that scientific medicine create a favorable public sentiment. The value of the good wishes of the general public are appreciated by such corporations as the American Telephone and Telegraph, various railroads, and even the Government itself, as witnessed by their respective publicity campaigns. Now it is necessary to reach the whole public, remembering that psychologists tell us from their Army experience that 43 per cent of our population is below the normal mental average. It must be remembered, also, that this 43 per cent has the vote as well as the 25 per cent of average intelligence and the 32 per cent of higher intelligence. Now, the way to reach this public (the voters) is through the newspapers. The A. M. A. has done, and is doing, a wonderful constructive work for public and Doctors by grading Medical schools, exposing fakers and fake medicine, and encouraging public-health work, and is worthy of every Doctor's whole-hearted support for this reason; but the time has come to take on the burden of a nationally conducted educational propaganda about scientific medicine, the same to be run in the daily papers. As a suggestion:

1. The medical journals to run an appeal for funds, the purpose and manner of expenditure to be explained in advertisement, and ask for voluntary contributions.

2. The employment of a professional, tactful

publicity manager, who can make the suitable educational matter sink into the average public mind. This man to be under and advised by the publicity committee.

3. This propaganda to consist of popular articles on—

- a. Constructive work of A. M. A.

- b. Necessity of making a diagnosis before treatment can be instituted.

- c. A talk on reason of medical ethics; how it protects public.

- d. Talk on the humanitarian side of medicine.

- e. Recent scientific advances and improvement in public health.

4. This to appear in Sunday editions of newspapers through the country, planned geographically, and to continue for at least six months.

This will require a considerable sum of money, but if the appeal be properly made with the assistance of local and State societies and individuals, it is probable under existing circumstances that the money can be raised, at least enough for a start.

If properly conducted, this educational work should result in:

1. Creating a favorable public opinion.

2. It will create a better feeling among editors toward organized medicine.

3. It will counter cult propaganda.

4. It will help individual M.D.'s.

5. It will forestall hostile legislation.

## A CASE OF GRADENIGO'S SYNDROM COMPLICATING MASTOIDITIS\*

By KENNETH A. PHELPS, M.D., F.A.C.S.

Instructor in Ophthalmology and Oto-Laryngology, University of Minnesota

MINNEAPOLIS, MINNESOTA

Gradenigo described a symptom complex in 1904 which is now called Gradenigo's Syndrome or Triad. It consists of (1) acute otitis media, with or without suppuration and with or without mastoiditis; (2) isolated paralysis of the sixth cranial nerve on the side corresponding to the diseased ear; (3) intense and unusually persistent pain located, not as ordinarily, in the mastoid region, but in the frontal, temporal, and parietal region of the same side.

• The following case is a clean-cut example:

Paul Scheffer, aged six, first came to the office April 23, 1923. One month before, he had had a severe coryza, which gradually cleared up, leaving him

with a slight cough. Two weeks later he developed a double otitis media, and both drums were incised by his local doctor. The right drained for only five days, while the left still drains. He has pain in the left ear at times now, he is irritable, restless, sleeps little and appetite is poor. He has lost considerable weight.

Examination shows that the right ear drum has a small perforation, through which a drop of pus can be seen. The left canal is full of pus, the posterior canal wall is slightly edematous, and there is a large perforation in the bulging drum, through which pulsating pus can be seen. The mastoid tip is tender on deep pressure, but no edema is present over this bone. The tonsils and adenoids are cleanly removed. The nasal sinuses transilluminate brightly; white blood count, 16,900; temperature, 100.° X-ray plates of the mastoids were made, and showed well-developed pneumatization and al-

\*Presented before the Minnesota Neurological Society, September 25, 1923.



most no bone destruction. It was decided to open the left drum wider and to wait a few days, hoping that the condition would clear up.

During these days the mastoid tenderness decreased, the temperature stayed about the same, as did the white blood count, and the discharge from the ear persisted. He complained of severe pain in and around the left eye, and would cry hours at a time with it, and during the night he hardly slept. The usual drugs failed to quiet him, and he was given morphia with temporary results. Examination of the eye was quite negative. No signs of meningitis were noticeable. Operation was decided upon, and a very extensive simple mastoidectomy was done. The cells were all necrotic, but the septa were distinct, as the x-ray had shown; no free pus was found, but the bone was rotten. Culture shows streptococcus mucosus. The cells over the sinus and in the zygoma were badly involved. A little dura was exposed, and it appeared healthy.

The next few days following the operation there was no relief from the pain in the left eye; he cried all night in the hospital, and morphia gave but little aid. On the fourth day after the operation a complete paralysis of the left sixth nerve appeared; no diplopia could be demonstrated, however. His pain now spread so as to involve the whole left side of his face, his cheek was very sensitive to touch, he could not chew nor could he brush his teeth because of pain. The condition of his middle ear improved, and the mastoid wound was healing nicely, though he still had a temperature between 99° and 100° every day.

Crowe's sign for thrombosis of the sinus was negative; blood culture was negative; fundus negative; white blood count, 14,000, or some lower than before the operation. No signs of meningitis.

The severeness of his headaches seemed to let up at times so that he was not in constant pain, but every night he would lie awake crying for hours. This state of affairs kept up for three weeks after the operation, when his headaches became much better. Soon he had no pain whatsoever; the middle ear and the mastoid were both in good shape, but the paralysis of the sixth nerve persisted. One month later, being about three months from the onset of the otitis media, he reported for examination. He was feeling fine generally, the middle ear was dry, and the mastoid wound was healed.

He could hear whispers at normal distance; vision each eye 20/20, and the external rectus of the left eye functions nearly normally, rotation of the corneal margin laterally nearly to the external canthus, but when he looks straight ahead there is a slight convergence of the left eye.

This case is unusual in that the hemicrania developed so long before the paralysis and per-

sisted for such a long time (three weeks after operation), and that the paralysis developed after the operation and produced no diplopia. Usually the pain ceases soon after the operation.

A review of the anatomy of the tip of the petrous bone will make the relation of the ear condition to the sixth nerve paralysis more clear. Perkins gives it as follows: "There is a spine on the posterior superior border of the petrous portion of the temporal bone extending toward the clinoid process. The petrosphenoidal ligament is a thick fibrous band extending from it to the posterior clinoid process. Beneath this bridge the inferior petrosal sinus joins the posterior end of the cavernous sinus, and the sixth nerve lies external to the sinus. Here it has its most important relation to the temporal bone. Narrowing of this canal causes pressure on the sixth nerve. The Gasserian ganglion lies in Meckel's dural cavity, and rests in a depression on the anterior superior aspect of the petrous pyramid, so a process affecting the sixth nerve would be likely to affect the Gasserian ganglion also."

Gradenigo believes the paralysis of the sixth nerve in these cases is due to a meningitis at the tip of the os petrosum; others think it is caused by an inflammatory edema and venous stasis in Dorello's canal. Toxins play a part by being distributed in the neighborhood, so when pus is dammed back the paresis increases, just as the optic nerve is affected by nasal sinus disease.

Gradenigo's syndrome may appear during a course of a simple otitis media and may clear up without any surgical intervention. The paresis of the sixth nerve is not an indication for operation, but the persistence of pain is usually considered to be. It also may accompany the more serious complications of otitis media, such as thrombosis of the jugular bulb or petrosal sinus, labyrinthitis, brain abscess, or meningitis located at the tip of the petrous portion. A skull fracture at this same point may produce a paralysis of the abducens.

Statistics show that in about 80 per cent of the cases there is recovery from the paralysis of the sixth nerve.

## THE CLINICAL LABORATORY: IX. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL, MINNESOTA

## RED BLOOD CELLS OR ERYTHROCYTES

The diameter of the adult normal red cell is from 6 to 9 microns. Such cells are called *normocytes*. *Microcytes* are those red cells less than 6 m. in diameter, while *macrocytes* are those over 9 m. in diameter. *Megalocytes* refer to non-nucleated red cells over 16 m. in diameter.

Red cells of irregular size are called *anisocytes*; and the condition shown by extreme variation in the size of the red cells is designated as *anisocytosis*. Red cells of irregular size, are found in the anemias, infectious processes, and other conditions. *Poikilocytes* refer to deformed red cells and the presence of such distorted erythrocytes is designated as *poikilocytosis*.

The red blood cells are produced in the body, perform their function, die, and disappear. Their life history is imperfectly understood. During embryonic life, nucleated red cells are produced in spleen and red bone marrow. In the fetus all of the red cells are nucleated especially during the first few months of gestation. These nucleated cells gradually diminish in number and at birth almost all have disappeared. In new-born infants, especially those born before term, nucleated red cells may be found without difficulty. During late infancy, in childhood and in adult life, nucleated red cells afford evidence of the presence of a pathological condition. The nucleated red blood corpuscle of normal size is called *normoblast*. These cells are found in various types of anemia, due to hyperactivity of the bone marrow. *Microblasts* refer to nucleated red cells smaller than the normal; while *macroblasts* or *megaloblasts* are those which are over 10 m. to 14 m. in diameter. *The appearance of normoblasts in the anemias* is the natural result of the activities of blood-cell-forming organs, in attempting to replenish the blood. In given cases of pernicious anemia, an unfavorable prognosis is afforded when no normoblasts can be found.

*Megaloblasts usually indicate an anemic condition of severe type.* Their appearance in the blood stream shows that the natural development of red cells is becoming exhausted. They are usually found in cases of severe anemia, advanced anemia, and in acute leukemias. Infre-

quently they are present in cases of chlorosis and secondary anemias.

## POLYCHROMATOPHYLIA

Normal red cells contain no granular formations. In certain pathological conditions, some abnormal red cells show darkly stained granules. This condition is called *polychromatophyilia*. In specimens of blood from pathological conditions, when nucleated red cells are found, polychromatophyilia is usually an accompanying feature. *Such abnormal cells are found* in the leukemias, malaria, pernicious anemia, in certain cases of chemical poisoning, and occasionally in some other conditions. *The appearance of punctate dark-blue granules*, usually designated as "basophilic stippling," is regarded as a sign of severe anemia, lead poisoning, and malaria. Very infrequently basophilic stippling may be found in the leukemias and in cancer cachexias.

## LEUKOCYTES, POLYMORPHONUCLEAR

Polymorphonuclear leukocytes vary in size, and the average number in normal blood is 65 per cent to 72 per cent. The nuclei may be separated or characterized by slight bands forming two or three lobes. The polymorphonuclear leukocytes make up the greater part of the phagocytes which infest and destroy bacteria and other foreign substances. The polynuclears constitute the so-called "pus cells." *Polymorphonuclear leukocytes* are increased in inflammatory conditions accompanied by suppuration, after hemorrhage, in eclampsia, and in certain specific infectious diseases, such as erysipelas, diphtheria, scarlet fever, smallpox, and meningitis. This condition is also found after the administration of quinine, salicylates, potassium chlorate, ether and chloroform inhalations.

## SMALL LYMPHOCYTES

These are nearly round, containing an oval nucleus, which fills the greater part of the cell. These constitute about 20 per cent to 26 per cent of the total leukocytes in normal blood.

*Lymphocytosis, or increase in lymphocytes*, may occur in lymphatic leukemia, in chronic infectious diseases, pernicious anemia, splenic anemia, exophthalmic goiter, cirrhosis of the liver, and congenital syphilis. Lymphocytosis is often

\*This is the ninth of a series of articles by Dr. King on the Clinical Laboratory.



found in underdeveloped and poorly nourished children, also in rickets. An increased number of lymphocytes is found in certain infectious diseases, such as pertussis, typhoid fever, measles, influenza and acute tuberculosis.

#### LARGE LYMPHOCYTES

These possess the same characteristics as the small lymphocytes, except they are larger. The normal percentage of large lymphocytes is about 5 per cent to 9 per cent. The large lymphocytes are sometimes increased in the same pathological conditions as noted above, under small lymphocytes.

The large mononuclear leukocytes are the largest white cells of normal blood. The average number in normal blood is about 1 per cent to 2 per cent. The nuclei are usually oval and occupy only a part of the cell. The protoplasm is slightly basophilic. *Large mononuclear leukocytes may be found* in certain cachexias, Hodgkin's disease and lymphosarcoma.

#### TRANSITIONAL FORMS

These are large white cells in which the nuclei are horseshoe in shape. They comprise about 1 per cent to 5 per cent of the total number of leukocytes in normal blood. They are regarded as the mature forms of the large mononuclear leukocytes.

#### EOSINOPHILES OR POLYNUCLEAR EOSINOPHILIC LEUKOCYTES

The average number in normal blood is 0.5 per cent to 3 per cent. The body of the cell is filled with distinctly bright-red granules. These cells possess very active ameboid movement. *Eosinophilia, or an increase in eosinophiles, is found in the following conditions:* parasitic infestation, such as trichinosis, filariasis, echinococcal cyst, ascariis, and hook worm, in bronchial asthma, in certain skin diseases, such as herpes zoster, psoriasis and pemphigus, in certain in-

fectious diseases as gonorrhea, (slight increase, especially when posterior urethra is involved,) scarlet fever, in some cases of tuberculosis and in myelogenous leukemia.

#### BASOPHILIC LEUCOCYTES OR MAST CELLS

These are smaller than polynuclear leukocytes. They contain large granules which take an intense basic blue stain. Mast cells in normal blood average less than 1 per cent of the total number of leukocytes.

*Basophile leucocytosis* is found in myelogenous leukemia. Wood\* reports a case of myelogenous leukemia in which the mast cells formed 10 to 15 per cent of the total leukocytes. *An increased number of basophilic leukocytes is one expression of disturbed tissue nutrition.* It is claimed that a large number of mononuclear basophiles are frequently present in cases of tuberculosis, syphilis, tumors, and skin conditions presenting lesions.

#### ABNORMAL LEUCOCYTIC FORMS

*Leucocyte Degeneration.*—Usually when leucocytosis is present there is also found evidence of destruction of leukocytes in the circulation. This is seen in a variety of pathological conditions. Degenerated leukocytes can be differentiated without difficulty from normal leukocytes which have collapsed or bursted as the result of too much pressure in making the blood smear, or on account of some other physical condition. The evidences of leukocyte degeneration are breaking of the walls of leukocytes, swelling of the cells, fading and shrinking of the nuclei. Leukocytes may undergo acute or chronic degeneration. *The acute degeneration of leukocytes has been found* in severe infections, such as diphtheria, acute bacteriemia, typhoid fever, and severe anemias.

*Chronic leukocyte degeneration occurs* in such diseases as the leukemias, especially myelogenous leukemia and in the anemias. (Wood.\*)

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

MARCH 15, 1924

## MINNEAPOLIS CLINIC WEEK

THE JOURNAL-LANCET calls its readers' attention again to the dates of the Minneapolis Clinic Week,—May 6, 7, 8, and 9. Headquarters are to be at the Radisson Hotel. It is probable that the dry clinic will be held in a neighboring auditorium where there will be ample room to accommodate all in attendance.

The "dry clinic" will be made up exclusively of "dry clinics." There still seems to be some confusion as to what a "dry clinic" is. We hesitate to re-iterate, but must do so. A "dry clinic" consists of the exhibition of a patient on the stage before the audience, when a full description of the patient's history, both family and personal, is given, as well as a detailed account of the symptoms complained of, and the diagnosis is finally arrived at by the attending physician or surgeon,—a typical diagnostic clinic. The patient will have no operation performed on him at the "dry clinic" on Tuesday and Wednesday; he may become an operable case for the surgeon on Thursday or Friday, consequently he may pass from the "dry clinic" period to the "wet clinic" period. The "dry clinic," again, may represent a surgical case for diagnosis, or may represent a medical case in which an analysis of the symptoms and examination of available disordered organs will be made. Comments and discussion will be invited by the clinicians.

It has been suggested, too, that perhaps some clinicians in the country are anxious to avail themselves of the clinic examinations on the "dry clinic" days or the clinic examinations that will be given in the Minneapolis Health Exposition. This is a new feature in Minneapolis Clinic Week.

Again we call attention to the annual banquet of the Hennepin County Medical Society to be held Wednesday evening, May 7, at the Radisson Hotel, and the promise is that we shall have a really good dinner, and also to the annual banquet of the Oto-Laryngological Society to be given on another evening.

One other feature which has been discussed and will be carried out is that the President of the Hennepin County Medical Society, Dr. C. B. Wright, will issue an invitation to all the presidents and secretaries of local societies throughout the state to meet during Clinic Week at an appointed time, which will be made convenient for those in attendance, to discuss medical society problems, how interest can be stimulated, and the best methods of presenting either cases or papers successfully. This appears to be a very good proposition, and it is hoped that all the men who are invited will accept, and thereby profit not only from the meeting but from Clinic Week in particular, and will also avail themselves of the opportunity to attend the Health Exposition which promises to be one of the biggest affairs that Minneapolis has ever attempted. The Health Exposition is to be held at the Armory, a building large enough for hundreds of health exhibits and thousands of people.

## THE 55th MEDICAL ANNIVERSARY OF DR. A. W. ABBOTT, OF MINNEAPOLIS

A complimentary dinner was given Dr. and Mrs. Abbott at the Minneapolis Club on Saturday, March 1. There were approximately one hundred doctors and their wives in attendance. The dinner was informal, but the tables were beautifully decorated with flowers sent in by the Abbott Hospital Alumnæ. Dr. Abbott, being the honor guest, sat at the head of the table, surrounded by his friends. It was first arranged that no after-dinner speeches be permitted, probably on the ground that some one has been trying to pass a law in the legislature abolishing after-dinner speaking, which, in many instances, would be a very good law. But the case of Dr. Abbott prevailed too strongly for any such violence of



the proprieties for any such custom, and his friends insisted upon some testimonials being given Dr. Abbott. This was done by five or six medical men who have known Dr. Abbott for many years, and by one or two lay friends who have known him for a long time.

Dr. Abbott was born in India; his parents were missionaries there at the time, but really residents of the United States. Dr. Abbott studied at Phillips Academy at Andover, Mass., and at Dartmouth College; he was later a student and a graduate of the College of Physicians and Surgeons of New York.

Dr. Abbott was with the New Hampshire Infantry during the Civil War, and was made prisoner, but it meant nothing in his young life at that time and nothing at the present time. Dr. Abbott came to Minneapolis forty-seven years ago, and had practiced in some other part of the country for the preceding seven years. Dr. Abbott with his classical white hair has always been a conspicuous figure in Minneapolis, as he was white-headed when he was eighteen years of age, and as far as the writer knows neither he nor Dr. Abbott has changed a hair in all the years they have been friends.

Dr. Abbott is the embodiment of the true theory of re-juvenation, not the kind that is tittled -tattled in the daily press or in the novels of to-day, but the real kind in which a man works, maintains his interest in youthful activities, associates with younger men, and his interests are so diversified that he forgets the passing years, and does not grow old. In fact he never has been un-rejuvenated. He is always cheerful optimistic, and helpful, and encouraging, not only to his patients, but to the younger men in the profession, so that everyone looks up to him as a man and as an example, the ideal medical practitioner who carries comfort and confidence with him to all the sick and ailing. He is really, by experience in the various branches of medicine, a real neuropsychiatrist, whether he likes to be called by that name or not we do not know, but he has that wonderful understanding of people and their conditions, both nervous and mental, as well as of their bodily infirmities.

Dr. Abbott helped to found the Minnesota College Hospital in 1884, and has been identified with the gradual growing out of the Minnesota College Hospital into what is now the Medical School of the University of Minnesota. He taught in the school for many years and gave up his connection with it only a comparatively few years ago.

THE JOURNAL-LANCET and all its friends extend to Dr. Abbott their heartiest congratulations—to him both as a man and as a physician.

## MISCELLANY

### RESOLUTIONS OF RESPECT\*

#### OZIAS STEPHEN CHAPMAN, 1839-1924

Ozias Stephen Chapman was born at Niagara Falls, N. Y., March 11, 1839, the son of Gardner S. and Amanda R. (Judd) Chapman, and died at his home in Minneapolis, February 6, 1924. The Chapman family came from England in the 17th century and the Judd family came from England in 1634, and has contributed a number of important names to the early history of the United States. Two brothers of Dr. Chapman also served in the Civil War, and when the Grand Army of the Republic met in Minneapolis in 1884 all three brothers marched in the parade.

Dr. Chapman went to high school in Lockport, N. Y., and started his medical studies at the University of Michigan in 1859. He entered the Union Army before his course was completed. He was appointed a hospital steward, U. S. A., by the Secretary of War, and had supervision over a large army hospital in Cincinnati, Ohio. While there he continued his medical studies at Miami Medical College and was graduated in 1865.

In 1867 Dr. Chapman moved to Kansas City, Mo., where he remained until he moved to Spencer, Mass. After practicing there six years he went abroad and came to Minneapolis afterwards, where he lived until his death. From his coming here in 1881 until about eight years before his death he practiced and served as one of the local surgeons of the Northern Pacific Beneficial Association, organized and sustained by the Northern Pacific Railroad.

Dr. Chapman was a member of the Hennepin County Medical Society and served as a member of the Board of Censors for a number of years.

In 1873 Dr. Chapman married Miss Adelaide C. Heyworth, of Peru, N. Y. Two children were born to them, one of whom died in infancy. The surviving daughter, Mrs. Starr King Sterling, of Minneapolis, died only two weeks before her father, leaving an infant daughter.

Dr. Chapman was vitally interested in all public questions of the day and was a member of the Republican party. He belonged to the Congregational Church in which organization he took an active part. He was associated with the John A. Rawlins Post, G. A. R., of Minneapolis, and a member of the Ancient Order of United Workmen.

In his long and useful life Dr. Chapman had seen the development of great inventions and discoveries in both the industrial and the medical world, and he was ever interested in the things that were happening in the world about him, and added much to

\*Presented before the Hennepin County Medical Society at its meeting of March 3, 1924.

the progress of the medical profession in his community. As a skillful and sympathetic physician and as a good and honest citizen, Dr. Chapman has lived a full life and has left many friends behind him.

#### A WARNING TO REGULAR PRACTITIONERS

The following correspondence between one of the most highly respected and best known physicians of North Dakota and the Secretary of the North Dakota Board of Chiropractic Examiners is indeed rich, and it needs no interpreter, for it clearly shows what medical practice in North Dakota—perhaps North America,—is coming to.

Mandan, N. Dak.,  
February 19, 1924.

Dr. Thor. Mohler,  
St. John, N. Dak.

My Dear Sir:—

It has been reported to me as Secretary of the State Board of Chiropractic Examiners, of the State of North Dakota, that you are practicing Chiropractic without a License, and in looking over the records, I find you have never applied to the Board or appeared before it for a License. Now the law is specific on this question, and I shall await your answer before I report your case to the State Attorney.

We want our laws lived up to in every respect, and when a case is reported, it is my duty to call it to the attention of the one reported, and if they don't make some effort to stop or get a license, then they are reported to the State Attorney in the County where they reside, and he reports back to the Attorney General. I hope the reports are not true, and that you will let me hear your side of the question.

Yours Very Respectfully,

A. O. HENDERSON,  
Secretary-Treasurer.

LAKE UPSILON or St. John, N. D.

February 22, 1924.

A. O. Henderson,  
Bismarck, N. D.

My Dear Sir:—

I have your astounding letter of the 19th inst. inquiring whether I practice "chiropractic."

In answer I will say that for 31 years I have been a licensed regular practising medical physician and surgeon in Illinois, Minnesota and North Dakota, and have the right to treat my patients in the way I in each case deem the best for their health. I do not know what constitutes the practise of "Chiropractic."

Hoping this will be sufficient information, I am

Yours,

THOR MOELLER, M.D.

## NEWS ITEMS

Dr. J. E. Countryman has moved from Grafton, N. D., to Long Beach, Calif.

Dr. John H. Rishmiller, of Minneapolis, is spending several weeks in Florida.

Dr. George D. Head, of Minneapolis, has returned from a month's visit in Florida.

Dr. M. A. Shillington, of St. Paul, has returned from a trip of a couple of months to California.

The Hennepin County Tuberculosis Association has engaged a rural school nurse for Hennepin County.

The Medical School of the University of Minnesota has 474 medical and 434 dental students enrolled.

Dr. J. W. Bell, of Minneapolis, who has been in the West for the past two months, has returned to the city.

The semi-annual meeting of the American Society of Clinical Surgeons will meet in Rochester (Minn.) on June 6.

Minnesota has reason to fear the introduction of a virulent type of smallpox, now prevalent in parts of Canada.

At the recent annual meeting of the Northwest Pediatric Society, Dr. H. G. Irvine gave a paper on "Infantile Eczema."

Dr. H. F. Helmholtz was elected President of the Northwest Pediatric Society at the meeting held in St. Paul on January 31.

Dr. R. R. Heim, of Minneapolis, has returned from a trip to Florida and Cuba. On his way home he visited Johns Hopkins.

Mr. Perrin C. Galpin, Secretary of the Commission for the Relief of Belgium, visited the Mayo Foundation the latter part of January.

Sidney, Mont., which has no physician nearer than thirty miles, offers a bonus of \$1,200 a year to the doctor who will locate there.

Miss Mary Edwards, who has been matron of the Ancker Hospital, St. Paul, for thirty-one years, resigned that position last month.

The Sioux Falls (S. D.) Lutheran Hospital Association voted to repair its present building and to erect a new building at some future time.



Dr. W. A. Allen, of Rochester, observed his 90th birthday last week by "attention to his business." He has practiced medicine for sixty-four years.

Dr. Edward W. Fahey, of Duluth, has been appointed supreme physician of the Knights of Columbus to succeed the late Dr. E. W. Buckley, of St. Paul.

Dr. John S. Seeley, of Faribault, died last week at the age of 72. Dr. Seeley was a graduate of Michigan, class of '76, and began practice in Minnesota in '84.

In order to secure a physician at Greenbush (Minn.) an association will be formed by several towns to raise a suitable amount by subscription to induce a doctor to settle there.

Dr. Charles Elmer Foss, of Havre, Mont., died last week at the age of 37. Dr. Foss was a graduate of Jefferson Medical College, class of '10, and began practice in Montana in 1911.

Dr. W. H. Barr, of Wells, has been appointed a member of the Minnesota State Board of Medical Examiners to succeed Dr. A. F. Schmitt, formerly of Mankato, but now of Minneapolis.

Dr. Walter Fink, a recent graduate of the University Medical School and a member of Phi Beta Pi, was married last month in Philadelphia to Miss Florence Fisch, of Minneapolis.

Dr. Emanuel Libman, Professor of Clinical Medicine, Columbia University, who visited the Mayo Clinic in January, gave a Mayo Foundation Lecture on "Endocarditis" on January 22.

"Why trade is dull." It is said that health conditions in Helena (Montana) and vicinity have been 100 per cent for several months, and the two hospitals in Helena have very few patients.

Nearly one hundred physicians attended the memorial dinner given for Dr. A. W. Abbott on March 1 to celebrate the fifty-fifth anniversary of his practice of medicine, forty-seven years being spent in Minneapolis.

The Medical School of the University and the City of Minneapolis will join in a request for \$2,000,000 from the Rockefeller Foundation, which, no doubt, will be granted, as the subject has long been under consideration.

It has been estimated that there are 20,000 needy crippled children in the eight states (Montana, Wyoming, Colorado, Kansas, Nebraska, the two Dakotas, and Minnesota) served by the

Twin Cities' Shriners Hospital in Minneapolis.

A movement is under way to erect an addition to the Ancker Hospital of St. Paul, to be used exclusively for pay patients at a minimum price of \$10.00 a week. The average maintenance cost of all patients in the hospital is about \$15.00 a week.

Dr. John H. Cheever, who formerly practiced in St. Paul, died last month in Oakland, Calif., at the age of 54. Dr. Cheever was a graduate of the Harvard Medical School, class of '01, and in recent years has been a resident of Arlington Heights, Mass.

Dr. H. G. Irvine and Dr. D. D. Turnacliiff have moved their offices from the Syndicate Building to Suite 405 Yeates Building. Dr. Turnacliiff has been associated with Dr. Irvine for the past three years in the practice of dermatology and syphilis.

The Cass County (North Dakota) Medical Society held its regular monthly meeting at the Fargo Commercial Club on February 28. Dr. J. F. Corbett, of Minneapolis, was the honor guest of the Society, and gave an address on "Peripheral Nerve Injuries."

Dr. Theodore C. Lund, of Hutchinson, died on February 25, at the age of 33. Dr. Lund graduated from the Medical School of the University of Minnesota with the class of '19, and after two years in the Medical Reserve Corps he began practice in Hutchinson, where he remained until his death.

Plans are under way for the construction of a separate building at the North Dakota State Tuberculosis Sanatorium at Dunseith for the care of tuberculous children. The North Dakota Tuberculosis Association will raise the necessary money for the building through its efficient field worker, Mrs. J. E. Stevens, of Devils Lake.

The Winona League of Women has endorsed a plan to build at once a tuberculosis sanatorium for Winona, Fillmore, and Houston Counties, which plan was rejected by the Winona County Commissioners. The late Dr. H. F. McGaughey, of Winona, left \$27,000 for such an institution if the building was erected by June 1, 1924.

The next annual meeting of the American Dermatological Association will be held in Minneapolis. Headquarters will be at the New Lafayette Club, where all papers will be given. A skin clinic will be given at the University Hos-

pital. The dates of the meeting are June 5, 6, and 7. Arrangements for the meetings are being made by the Minneapolis members, Dr. John Butler, Dr. S. E. Sweitzer, Dr. Chas. Freeman and Dr. H. G. Irvine, who as a member of the Council is acting as chairman.

#### THE HENNEPIN COUNTY'S MEDICAL SOCIETY'S HEALTH EXHIBIT—MAY 3-10

A Health Exhibit is to be held in the Armory at Minneapolis on May 3 to 10, under the auspices of the Hennepin County Medical Society. It will have the co-operation of the dental profession, the hospitals, city, state, and federal health agencies, the pharmacists, public officials, civic bodies, and social welfare organizations. Mr. R. E. Logsdon, the managing director of the undertaking, predicts that there will be about one hundred organizations in all when the various agencies take action.

The Health Exposition idea has been tried in Cincinnati, Indianapolis, Portland, Louisville and Detroit, and in each of these places the attendance amazed the medical men, ranging from 77,000 to 250,000.

At the Armory the exhibits will be so planned that the average citizen, in a few hours' time, may obtain a liberal visualization of what the city, state, and federal health agencies are doing to safeguard the community. There will be a general physical survey, giving free physical examination to all who ask it; a child health conference for the instruction of mothers and children; fifteen free clinics of various kinds on prevention and treatment; lectures, motion pictures, and unique demonstrations.

Headquarters are now open on the eleventh floor of the Donaldson Building in the offices of the Hennepin County Medical Society.

#### THE SUMMER SHORT COURSE FOR GENERAL PRACTITIONER OF THE UNIVERSITY MED- ICAL SCHOOL

The Short Course for General Practitioners, which has been given for the past four years by the Medical School of the University of Minnesota, will be given again the coming summer, but in a somewhat different way.

Formerly, this course for four weeks was given in the month of May, the course being a general one covering medicine, surgery, obstetrics, and pediatrics. The attendance has averaged about thirty men. However, very few of the men have staid through for the complete

course. An innovation will be tried this year in this way. The course is to be divided into two parts, giving two weeks in Medicine and Surgery starting May 26, and two weeks in Pediatrics and Obstetrics in September. The aim is to accomplish two things in this way; first, during these periods the undergraduate student body will be away from the Medical School thus placing the entire facilities of the College at the disposal of the men taking the Short Course; and, secondly, some men may be able to come and stay for the two full weeks and thus get the full course, instead of only a portion of it.

The advance notice of the course that went out, stated that the course would start June 2, but owing to the conflict with the meeting of the American Medical Association in Chicago, it has been decided to advance the Spring Course to May 26.

#### Wanted: Physician on Salary

An assistant physician for general practice on the Mesaba Range. Must be a high-grade man, able to assume responsibility. Good salary to right man. Address 58, care of this office.

#### Office Position Wanted in Minneapolis or St. Paul

By the widow of a physician. Applicant has a pleasing personality, and has just learned stenography. Will work for a very moderate salary. Address 66, care of this office.

#### Minneapolis Office for Rent

Choice of several rooms in a Minneapolis building exclusively for physicians and dentists. Reception room, nurse, laboratory technicians, etc., in attendance. Address 67, care of this office.

#### Practice for Sale

Office equipment and practice for sale at a bargain in one of the best outlying districts of St. Paul, on account of prolonged illness. Everything ready to go to work. A good opportunity for someone. Address 69, care of this office.

#### Office Position Wanted

A thoroughly experienced medical secretary, correspondent, bookkeeper, and stenographer desires a place in a hospital or office in the Twin Cities. Familiar with all medical office detail, and can give the best of references. Address 64, care of this office.

#### Wanted, An Assistant Physician

Preferably a physician with one or two years' experience. An assistant physician with ultimate partnership and the inheritance of a large and old-established practice. Must be especially interested in obstetrics and diseases of women. Address 61, care of this office.

#### Physician Wanted

At once to take over a practice in a town of 600 near the Twin Cities. No competition. A Protestant



and German preferred. Small investment required. Do not answer unless you are in earnest. A very good position for one who wants a country practice. Address 68, care of this office.

#### Late Model X-Ray Transformer for Sale

Victor Snook X-Ray Transformer, Auto and Resistance Control, complete with Coolidge Transformer and Control. Remote Control, Transformer and Rectifying Device in Cabinet. For 220 volt direct current. Reasonably priced. For further information address 60, care of this office.

#### Small Minnesota Hospital for Sale

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

### PHYSICIANS LICENSED AT THE JANUARY (1924) EXAMINATIONS TO PRACTICE IN MINNESOTA BY EXAMINATION

Name	School and Date of Graduation	Address
UPON EXAMINATION		
Anderson, Karl Walter	U. of Minn., M.B., 1923	2508 11 Ave. So., Minneapolis
Andrews, Robert S.	Johns Hopkins, M.D., 1923	Swedish Hosp., Minneapolis
Baldwin, Archie Edward	U. of Minn., M.B., 1923	Brownsdale, Minn.
Bergman, Oscar Bernard	U. of Minn., M.B., 1923	329 Union St. S. E., Minneapolis
Bianco, Anthony Joseph	U. of Minn., M.B., 1923	St. Mary's Hospital, Duluth, Minn.
Bliss, John Herbert	Columbia U., M.D., 1921	Rochester, Minn.
Cabot, Geo. Sheryl	U. of Minn., M.B., 1923	General Hospital, Minneapolis
Carleton, Rachel	U. of Minn., M.B., 1923	Research Hosp., Kansas City, Mo.
Creighton, Ralph Higby	U. of Minn., M.B., 1923	General Hospital, Minneapolis
Dobson, Herbert Victor	Toronto, M.B., 1919	Rochester, Minn.
Eder, Lawrence Frank	U. of Minn., M.B., 1923	2617 3 Ave. So., Minneapolis
Eitel, Geo. David	U. of Minn., M.B., 1923	General Hospital, Minneapolis
Fredrickson, Clyde Harald	U. of Minn., M.B., 1923	General Hospital, Minneapolis
Garbrecht, Arthur	Königl-Friedr-Wilh. U. Berlin, Germany, 1922	Lowry Bldg., St. Paul, Minn.
Gray, Royal Clendenning	U. of Minn., M.B., 1923	1717 1st Ave. So., Minneapolis
Greisheimer, Esther Maud	U. of Minn., M.B., 1923	507 Essex St. S. E., Minneapolis
Haddow, Norval Wm.	U. of Minn., M.D., 1923	Chippewa Falls, Wis.
Hall, Horace J.	U. of Minn., M.D., 1923	N. P. Hospital, St. Paul, Minn.
Hebeisen, Milton Boyce	U. of Ill., M.D., 1922	Carver, Minn.
Hefke, Hans Wilhelm	U. of Hamburg, Germany, 1923	St. James, Minn.
Hermanson, Peter Eugene	U. of Minn., M.B., 1923	Ancker Hospital, St. Paul, Minn.
Hurd, Fritz Draper	U. of Minn., M.B., 1923	University Hospital, Minneapolis
Johnson, Ray Geo.	U. of Minn., M.B., 1923	Mds. Park. Sanit., St. Paul, Minn.
Jones, Louis Edwin	U. of Minn., M.B., 1923	St. Barnabas Hosp., Minneapolis
MacRae, Gordon Campbell	U. of Minn., M.B., 1923	3041 Holmes Ave. S., Minneapolis
Mailer, Robert	U. of Edinburgh, M.D., 1923	Rochester, Minn.
Moore, Thomas Benjamin	U. of Minn., M.B., 1923	General Hospital, Minneapolis
Reynolds, Gardner Shaw	U. of Minn., M.B., 1923	2145 Knapp St., St. Paul, Minn.
Richards, Wm. Bryant	U. of Minn., M.B., 1923	Duluth, Minn.
Setzer, Hobert Joseph	U. of Minn., M.B., 1923	403 Dewey Ave., St. Paul, Minn.
Sherwood, Noble Pierce	U. of Minn., M.B., 1923	1801 Indiana St., Lawrence, Kansas
Simons, Edwin J.	U. of Minn., M.B., 1923	University Hospital, Minneapolis
Urner, John Arnold	U. of Minn., M.B., 1923	3716 Elliot Ave., Minneapolis
Van Valkenburg, Fredk. Wanton	U. of Minn., M.B., 1923	Long Prairie, Minn.
Welch, Elwyn H.	U. of Minn., M.B., M.D., 1923	1536 La Salle Ave., Minneapolis

#### THROUGH RECIPROCITY

Austen, Willard Emerson	U. of Pittsburgh, M.D., 1921	Rochester, Minn.
Backus, Andrew Stephen	Toronto, M.D., 1905	1954 Univ. Ave., St. Paul, Minn.
Kilgore, Franklin Hartman	U. of Tex., M.D., 1921	Rochester, Minn.
Lazar, Henry L.	Tulane, M.D., 1905	310 Donaldson Bldg., Minneapolis
Luse, Horatio Devoil	Hah. Chicago, M.D., 1911	1214 W. 32 St., Minneapolis
McElroy, Jesse L.	Ind. Med. Coll., M.D., 1907	Ancker Hosp., St. Paul, Minn.
Robertson, Paul Augustus	Med. Coll. Va., M.D., 1921	Austin, Minn.
Veirs, Dean M.	U. of Louisville, M.D., 1921	222 Otis St., St. Paul, Minn.

#### NATIONAL BOARD CREDENTIALS

Pederson, Oluf Johan	Northwestern, M.D., 1915	Hanska, Minn.
----------------------	--------------------------	---------------

# THE JOURNAL-~~L~~ LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 7

MINNEAPOLIS, APRIL 1, 1924

Per Copy, 10c  
A Year, \$2.00

## EXTRAPLEURAL THORACOPLASTY\*

BY ERNEST S. MARIETTE, M.D.

Superintendent & Medical Director of Glen Lake Sanatorium, Oak Terrace, Minnesota  
Assistant Professor of Medicine, University of Minnesota

OAK TERRACE, MINNESOTA

The most effective treatment of tuberculosis is based upon rest of the diseased part, and the chances of a cure are in direct proportion to the completeness of the rest attained. If it is impossible, as in pulmonary tuberculosis, to attain complete rest, we, at least, can reduce the movement of the diseased part to a minimum, and at the same time conserve the permanent functional activity of the lung. In cases of pulmonary tuberculosis, therefore, we first try bed rest.<sup>6</sup> This, if kept up long enough, will bring about a cure in the majority of cases. However, in a certain portion of cases, because the infection is too large or for some other reason, bed rest does not produce the desired results, and we then take the next step in producing localized rest, namely, artificial pneumothorax. Unless adhesions form this does not interfere permanently with the functional activity of the lung, because it can be allowed to reexpand at the end of two or three years when the pneumothorax is finished.

Adhesions will prevent a successful collapse in about 25 per cent of the pneumothorax cases, and then we are forced to resort to extrapleural thoracoplasty. This is the most radical measure we have for bringing about rest of the diseased lung, and is one which interferes most with its permanent functional activity; therefore it should be reserved for those cases where the less rad-

ical measures such as bed rest and postural rest have not been sufficient and pneumothorax has proven impossible.

Nature, in her attempt to cure tuberculosis, gives man his best argument for extrapleural thoracoplasty in the fact that the fibrous tissue formed in the lung during healing contracts and causes a shrinking in the lung, resulting either in a deviation of the mediastinum or in an elevation of the diaphragm, or a falling in or a depression of the ribs. When the ribs fall in, or are depressed, we have somewhat the same results, although not as complete, as we get by means of extra-pleural thoracoplasty.

Quincke,<sup>4</sup> appreciating this law of nature, advocated, in 1888, the removal of the ribs covering a cavity because he claimed that the rigid, bony thorax prevented the collapse of the walls of the pulmonic cavity upon contraction of the fibrous tissue formed in the lung. This was rather radical, and C. Spengler was about the only one who grasped the idea. He, at first, used the method only in cases with coincident pleural exudation, and it was not until 1903 that he performed the operation to which he gave the name of "extrapleural thoracoplasty." However, the sections of ribs removed were small, and Turban was the first to remove any considerable portion of ribs. In 1902 Landerer published nine similar cases with unsatisfactory results.

Most of the men at that time advocated comparatively local thoracoplasties, rather than gen-

\*Presented before the Staff of the Lymanhurst Hospital, March 13, 1923.



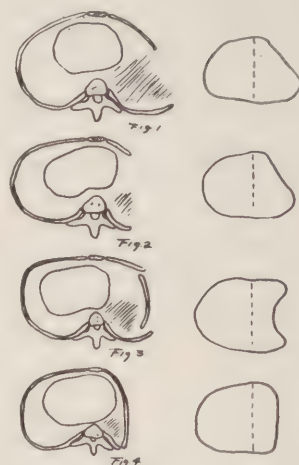
eral ones over the entire chest. But pneumothorax clearly proved that complete collapse of the lung gave a much better result than partial collapse, so Bauer, in 1907, went a step further and decided that a large part of the ribs must be removed if results comparable to those obtained by pneumothorax were to be achieved by thoracoplasty.

Frederick followed closely, and, in December of the same year, performed his first great thoracoplasty, using Sheda's large arc-shaped incision, and removing the intercostal muscles and periosteum as well as the ribs. A number of operations by Frederick, Bauer, Wills, and particularly Sauerbrück followed, and gradually the technic was modified so that only the ribs were removed. They were all trying to find a method which would give a maximum collapse of the chest wall and lung with a minimum degree of danger to the patient's life and his future capacity for work; therefore the more simple the operation, the better.

Most surgeons now have agreed that the method advocated chiefly by Sauerbrück and Wills, known as the posterior one, is the safest and easiest operation and therefore the one of choice.

Boiffin and Gourdet,<sup>4,8</sup> in the middle nineties, gave the first intelligent and satisfactory explanation of why the posterior operation gives the best results. Their explanation is as follows: the rib cartilage in front is yielding and the anterior part of the rib can be pushed backward or inward, while the posterior portion is stiff and, practically speaking, immovably connected with the vertebral column and is only slightly moveable up and down. Further, the posterior part of a rib exhibits a marked concavity forward, or, in other words, it forms an arc, the radius of which is much less than the arc of the ribs. The angle of the rib forms the most permanent point on the arc behind. Any section of the rib which is situated in front of the angle of the rib leaves behind a stiff, unyielding piece of rib. This in accordance with its length will prevent the soft part from falling in and thus diminishing the costovertebral angle. On the other hand, removal of the stiff, posterior part permits the anterior part to be turned backward towards the spine so that the arc of the curve of the rib is considerably decreased and the volume of the thorax correspondingly reduced. Also the soft parts can move very easily over the yielding anterior ribs, but they are stretched over the stiff projecting end of the posterior rib.

The following drawings are copies of Gourdet's:<sup>4,8</sup>



—After Bull.

Fig. 1. Result of Eslander operation upon a cadaver after resection of five ribs. Effect: reduction of circumference of chest by 4 cm.

Fig. 2. Same operation, but larger section, eight ribs removed. Total, 110 cm. Effect: reduction of circumference by 5.5 cm.

Fig. 3. Result of E. Quinu's operation. Resection before and behind of a small piece from each of seven ribs. Reduction of circumference, 3 cm.

Fig. 4. Boiffin—Gourdet operation upon a cadaver. Resection of 6 cm. of nine ribs, in all 54 cm. Effect: 8 cm. reduction of circumference. One sees how the front ends of the resected ribs can be drawn backward to make contact with the posterior end. The costovertebral angle has been almost obliterated.

There should be the closest co-operation between the medical man and the surgeon, because the treatment of tuberculosis is primarily medical. Whatever surgery may be used to compress the lungs is not a cure-all, as is an appendectomy, but merely an incident in the lung medical treatment of tuberculosis, and should be prescribed and supervised by the physician as closely as any other therapeutic measure. A tuberculosis patient presents certain problems best understood by a man especially trained in the treatment of tuberculosis, and so the selection of cases and their after-care will fall chiefly on him. He should know something of the general principles of thoracoplasty and the results to be achieved if he is to co-operate intelligently with the surgeon; therefore I am going somewhat into detail concerning the general method of extrapleural thoracoplasty.

The operation of choice is the posterior one, and is best done in two stages with an interval of not longer than two to three weeks because of the danger of rib regeneration inside of the periosteum. The usual procedure is to operate on the base first and the apex second.

The extent and severity of the pulmonary pathology will determine which ribs and the

amount of each which must be removed in order to produce the desired collapse and reduction in the excursion of the diaphragm. The removal of the 11th rib does not materially affect the collapse of the thoracic wall. It does, however, tend to immobilize the diaphragm and also permit or increase its retraction upward into the thoracic cavity along with the contraction of fibrous tissue during healing; therefore the degree of mobility of the diaphragm, whether it is freely moveable, or bound down by adhesions, will determine the question of removal of the 11th rib.

The 10th rib should always be removed even though the lesion is limited to the upper lobe. If the lower lobe is diseased also, a larger portion of the 10th and 9th ribs should be removed.

Bull<sup>4</sup> claims that by using a posterior method, one obviates the necessity of the extremely large resection formerly used. He also claims that when the lung shrinks, it will occupy a certain amount of space in the cavity and that all we should attempt to do then is to have the sunken thoracic wall closed in about the shrunk lung. That this can be expected with a fair degree of certainty, considering individual cases, of course, by a resection of about 12 cm. of the 10th and 9th ribs and about 15 cm. of the succeeding ribs to the 4th, and about 10 cm. of the 4th, 3d, and 2d. The rib cartilage of the upper ribs is, to some degree, the seat of calcareous deposits in pulmonary tuberculosis. It is also shorter and stiffer than the cartilage of the lower ribs, and, therefore, the anterior segment of the resected rib is not as moveable as the lower ones. That makes it necessary to remove relatively more of those ribs, in order to obtain the desired collapse over the apex.

The first and second ribs are very closely related, and in pronounced disease of the upper lobe, where a good collapse must be secured, it will be necessary to resect both first and second ribs.<sup>4</sup> Bull, at first, did not resect the first rib, but now reports fifteen cases in which this has been done and recommends that it be done in the majority of cases. But where there is relatively little disease of the apex, the majority of the disease being at the base, resection of the second rib is sufficient. One might question the advisability of removing so many ribs in basal disease, but, if only the ribs up to the fourth are removed, the scapula will revolve on a frontal axis, corresponding to the projecting fourth rib and the angle only will fall into the

depression. The scapula, in its entirety, especially its posterior edge, cannot fall in until all the ribs against which it lies are resected.

Bull claims that, where there are large cavities, ordinary extrapleural thoracoplasty will not give sufficient collapse, and he recommends the intrathoracic transplantation of fat on the theory that this would increase the pressure and thus collapse the cavity. He does this through an axillary incision and does not produce a space larger than a hen's egg because of the difficulty in getting a patch of fat large enough for it. In cases of marked apical disease, some recommend apicalitis, using fat to fill the gap. Archibald, of Toronto, uses the pectoral major muscle, but he has not had very good success, and in the spring of 1922 at Washington reported that he was seriously considering abandoning this procedure. Apicalitis is a pretty severe operation in which the mortality risk is a great deal higher.

The operation is a rather severe one, and the physician should have a good idea of how much will have to be done so that he may consult with the surgeon intelligently before advising the operation.

At present Dr. A. A. Law, who has shown the greatest spirit of co-operation and has done all of our work, is using the two-stage operation, the base first from the 11th to the 6th or 7th rib, inclusive; and the remainder of the ribs are removed later. The question of whether the first rib should be removed, as well as the second, depends upon whether the disease is more marked in the apex or base. The reaction associated with the two-stage operation is not so severe and the patient stands it better than the one-stage operation. He uses local anesthesia with gas and oxygen anesthesia with the usual ante-preparation. The interval should not be over three weeks, preferably, two weeks, because a longer time permits regeneration of the rib.

We had one case where the interval was nearly three years, and it was necessary to enter the pleural cavity in order to remove the regenerated rib and periosteum, and the result, as you will see, is not so very good.

The position of the patient during the operation renders expectoration difficult and favors aspiration of sputum into the healthy lung; therefore it is well to have the patient cough as much as possible before the operation and clear the lungs of sputum, so as to prevent an attack of cough during the operation.



*Indications.*—

1. Unilateral pulmonary tuberculosis, which, in spite of rational treatment, either grows steadily worse or remains stationary for a long time, or progressive tuberculosis in any stage, or an indolent moderately advanced case, where ordinary treatment or pneumothorax has been unsuccessful. The other lung should be practically free from disease and of course the better the general condition of the patient, the better the chances of success.

Therefore, one should not wait too long in the presence of a high fever with profuse expectoration. Thoracoplasty should never be used until pneumothorax has been attempted and has failed.

2. Where we have a partial pneumothorax with the base collapsed, but the diseased apex is held out by adhesions. In such cases one can continue the pneumothorax, considering it as the first stage, and proceed to operate on the apex. This, of course, while mechanically harder for the surgeon, means that the patient is saved the inconvenience, to say the least, of one operation. This is done realizing that the pneumothorax will either have to be kept up indefinitely or that, when it is discontinued and the lung allowed to expand, adhesions may be formed and a relapse follow, making thoracoplasty of the base imperative. The physician and surgeon will have to take that risk when deciding to produce only a localized or partial thoracoplasty.

3. Cases where discontinuation of pneumothorax and a re-expansion of the lung would result in local areas of fibrosis and emphysema. The emphysematous areas would not increase the aëration tissue of the lung, but would provide a chance for chronic bronchitis, etc. The choice, then, is between thoracoplasty, which will let the bony thorax close in about the lung, or a continuation of the pneumothorax during the life of the patient.

4. Cases which have a prolonged course of treatment before them and they wish to reduce the time anywhere from one to three years.

5. Repeated hemoptysis, shrinkage of lung with marked dislocation of heart and trachea are factors in favor of operation.

6. The chronic fibroid case with cavity formation offers the best results.

*Contra-indications.*—

1. Acute disease.

2. Advanced disease in the other lung and tuberculosis elsewhere, as kidney, intestines, etc., in addition to the usual contra-indications that

hold good for all major operation. Slight laryngeal tuberculosis is not a contra-indication because the decrease in cough and expectoration resulting from the operation would have a beneficial effect on the larynx. After all, the question of thoracoplasty is up to the judgment of the physician and surgeon.

*Post-operative Treatment.*—The bandage should be tight enough to slightly compress the side and also support it during cough, but still not so tight as to compress the well side and diminish respiration. Later on, postural rest may be used to increase the amount of local rest and guide the ribs so that they are pressed inward during the period of regeneration. Unless complications arise, there will be a slight rise in temperature, pulse, and respiration, which soon return to normal in a few days. A high prolonged temperature and pulse rate indicate some serious complication, and such a patient deserves the strictest and best of symptomatic care.

There may be considerable pain in the operative area, which interferes somewhat with coughing. This should be controlled, as it is of prime importance that pulmonary drainage be kept up. Frequently the pain radiates to the breast and down the arm to the elbow, resulting in restricted movement of the arm. There may be also loss of sensation in the hands and fingers. These results are purely temporary, and, unless the scapula is fixed, there is no interference with function of the arm.

The patient may complain also of dyspnea, which may be due partly to pain and partly to mediastinal flutter or poor heart action because of the sudden change in intrathoracic pressure. Sometimes it takes several weeks for the heart to accommodate itself and for the distressed feeling to disappear. This was particularly marked in one of our cases where there was also considerable cyanosis. The more the patient exerted herself the more pronounced was her dyspnea and the poorer her pulse. To control this, morphine and cardiac stimulants were used. She progressed fairly well for about five weeks, when she was given a shampoo and eight hours later acute symptoms developed, that is, rapid pulse and high fever; and she died in about forty-eight hours, supposedly from an acute septic condition.

Post-mortem examination demonstrated that we had misinterpreted our *x*-ray plates because of a markedly thickened pleura; that our pneumothorax had been successful and the lung was well collapsed down around a large firm walled

cavity. This was partially filled with pus, and a large band of adhesions was found between the diaphragm and the lung.

We concluded from the above that the operation had had no effect upon the collapsed lung or the course of the disease, and that the patient's death could in no way be due to the operation.

Another case ran a variable temperature to 104.4° and pulse up to 115 for sixteen days, after which the temperature dropped to normal, but the pulse ran high for three weeks more. This was due to complications in the other lung, which finally cleared up. A second operation was performed in four months with an uneventful convalescence.

Usually convalescence is uneventful, and cough and expectoration decrease, temperature and pulse return to normal, weight increases, etc., and the picture is changed. The patient's improved subjective condition puts him in better spirits, and some patients even have a firm conviction that they are cured. The sputum usually decreases after a while, and, in some cases, it may disappear altogether. This is usually a good prognostic sign, but it does not mean that a cure has taken place. The decrease may be irregular, and it may take some time to prove that a steady reduction has taken place. Tubercle bacilli may disappear with the reduction of sputum, and, best of all, from a patient's point of view the cough disappears with the reduction of expectoration.

In time the operative side of the thorax falls in considerably, so that the edge of the scapula is visible from the front. Scoliosis in the corresponding part of the spinal column may develop. This is the reverse of that found in empyema, the convexity being towards the well side, presumably because the muscles on the operated side are partially paralyzed due to the cutting, and the muscles of the other side draw the spinal column over.

There may be some deformity visible from the front or back when the patient is unclothed, but you will see from the pictures that the shoulder girdle is not affected, and that when the patient is clothed and ready for the street there is not much noticeable deformity. On the whole, it can be said that the inconveniences of the operations are very small.

Estimation of the success or failure of the operation from physical signs may be difficult, because, even in the most fortunate cases, the lung will, of course, never return to normal and

one must always expect to find abnormal conditions.

The percussion note may vary from slightly tympanitic to almost flat. Bronchial and amphoric breathing, due either to uncollapsed cavities or the large uncollapsed bronchi, may persist perhaps permanently, perhaps for years. Moist râles may persist, but in time may become dry. I presume the continuation of the râle is due to the fact that the thoracic wall and the lung, to some extent, have lost their elasticity, thus preventing complete pulmonary drainage. One should remember this in basing a prognosis on scanty expectoration and absence of tubercle bacilli, particularly, when found in connection with the above physical findings.

*Results.*—Bull, in a report of about 37 cases, obtained a curative result of 45 per cent. Saugman, in 40 cases, reported 33 per cent able to work, and he recommends sanatorium treatment before and after the operation. Sauerbruck, in over 391 cases, reports 35 per cent practically cured and 40 per cent with marked improvement.

Bull gives as his reasons for failure in 18 cases:

In 3 of the cases the operation was incomplete, (2 due to insufficient experience and 1 case of too poor physical risk.)

In 10 cases the other lung became diseased.

In 1 case, after the "flu" which is also to be blamed for aggravation in several other instances, even to the extent of hemoptysis.

In 4 cases, temporary improvement, but they have not recovered satisfactorily in spite of the fact that the other lung appears healthy, cough and expectoration with or without tubercle bacilli being present. Two of these patients also suffer from nephritis, and one case had a better result after fat transplantation and a course of sanatorium treatment.

In some cases it seems impossible to tell why the patient does not seem to do well.

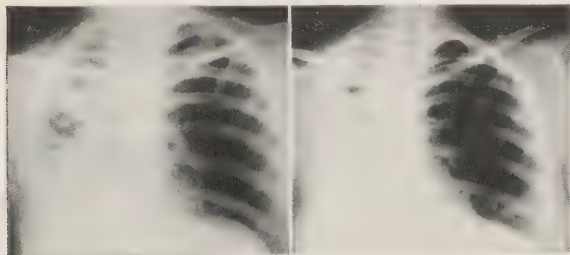
To date we have five cases of extrapleural thoracoplasty at the Sanatorium, and, while the number is entirely too small to warrant any definite conclusions, I still feel that some comment would be interesting:

CASE No. 622.—Male, aged 63. Single. F. A. Lili Ro, with cavity formation at apex. Operations were both successful, and the patient had an uneventful convalescence from both. The interval was six months, entirely too long, but this was our first case and he felt so much better after the first operation that he hesitated about the second. The last stage was done July, 1922, and now he wants to leave the Sanatorium and go to work.



Stereoplates of the chest dated Sept. 4, 1922, show about one-half of the left chest collapsed by thoracoplasty. Cough and expectoration absent for days at a time. Sputum may or may not contain tubercle bacilli.

CASE No. 656—Female, aged 24, white. Family history, negative. First admission, July, 1918. Unilateral disease limited to upper lobe in left. Condition progressed, and pneumothorax was started



Before operation

After operation

The second figure shows that the ribs were not removed close enough to the spinal column.

in October, 1918. Discharged in excellent shape with good compression in August, 1919.

She was referred back to her physician, who gave her only two refills and then discontinued pneumothorax.

Examination at this time showed considerable moisture in the apex of the left lung, and râles were heard posteriorly at the right apex, which were not present before operation.

X-ray revealed a definite increase in the infiltration of the apex and first and second interspaces on the right side and a possibility of a localized bronchopneumonia in the right lower lobe.

On the fourteenth day after operation temperature began to come down and was normal in two weeks. She recovered entirely, and the second stage was done in September, 1922. The convalescence was uneventful. The sputum markedly decreased till she expectorated only twice daily.

Signs of a cavity still persist, and there is still some evidence of moisture. The ribs were not cut close enough to the spinal column, and so the compression is not as good as we should have had. She should have a third operation. NOTE.— This has been done since this paper was read, and the result was excellent.

CASE No. 265.—Male, aged 22.

Admitted to Glen Lake Sanatorium April, 1918. Adhesions prevented pneumothorax, therefore in September, 1919, a partial thoracoplasty was done in another clinic, and portions of the 3d to the 8th ribs, inclusive, were removed. We could not persuade him to have anything more done until July, 1922, when portions of the 9th, 10th, and 11th ribs



Figs. 1 and 2 show the small amount of functional impairment which results from the operation. Fig. 3 shows how little noticeable deformity there is when the patient is dressed.

Readmitted April, 1921. Lung nearly expanded, and patient having hemorrhages. I feel confident that had the pneumothorax been kept up there would have been no relapse.

She had extensive involvement of the left lung with cavity formation, and as we were unable to influence the lesion any, even though she was kept in bed a year, we decided to have a thoracoplasty done. The first stage was done in May, 1922. On the sixth day following the operation, the temperature rose slightly, but returned to normal again on the tenth day, but on the twelfth day it went up to 104.2°, and on this day she raised about 30 c.c. of pussy sputum and about 4 c.c. of blood.

were removed. His reaction was quite severe following this. Temperature and pulse became normal in about three weeks. The chest wall, however, was held out by the regenerated 8th rib, and so in February, 1923, part of this rib and the 7th and 9th ribs were again removed. The convalescence was uneventful.

The first stage should have been done on the lower part of the thorax, leaving the upper to be operated on later, and, as the entire side was diseased and good collapse of the apex was essential, the first rib should have been removed also. The sputum has been negative since February, 1922.

Operating on the middle portion first makes fu-

ture operation more difficult because we then have two ends to do, both apex and base instead of just one.

CASE No. 662.—Female, white, married, mother of three children.

Tuberculosis began in the fall of 1919 following the birth of the third child. She was entered in Glen Lake Sanatorium April, 1921, with far-advanced, practically unilateral tuberculosis with cavity formation and with high fever and rapid pulse.

Strict bed rest was used together with postural rest, but these were not sufficient, and pneumothorax was impossible because of adhesions, so that thoracoplasty was recommended and Dr. Law removed the lower ribs on January 7, 1923. Her pulse was rapid and the temperature variable until January 30, when both became normal.

The second stage was done February 11, 1923, and the convalescence was uneventful.

The sputum varied from 23 to 56 gms. before the first operation and decreased to 10 gms. following the second. It is still positive.

CASE No. 959.—Female, white, single, aged 26.

Family history, negative.

First attack of pleurisy occurred in 1915. Another attack in 1918, and "flu" in 1919, followed by a persistent productive cough and pleurisy with effusion on the right side. She was aspirated twice, and about one pint of fluid was removed each time.

Sanatorium treatment was begun in 1919, and pneumothorax was done in the spring of 1922. Entered Glen Lake Sanatorium September 20, 1922.

Pneumothorax was continued, but because of dense shadows caused by thickened pleura it was hard to determine the exact result as the pneumothorax was thought to be only partial and there was apparently an adhesion between the lower lobe and the diaphragm with a retraction upward of the diaphragm.

Thoracoplasty was performed January 7, 1923, and was followed by considerable pain in the wound. Three days later the temperature was 101.6° and the pulse 140, feeble pulse; cyanosis; slow and shallow respiration. The temperature returned to normal; pulse, 110; irregular periods of fever and rapid pulse; cough persisted, and there was no diminution in the sputum. Patient died February 10, 1923.

Autopsy showed the right lung collapsed around an uncollapsed cavity, which was partially filled with pus. The x-ray shadow we had seen in the lower lobe region was proven to be due to an elevated diaphragm.

From the autopsy findings I think we can safely say that the operation had no influence on the course of the disease.

One patient is feeling so well that he wants to start work; three are still under treatment, and two of the three will probably recover sufficiently to go to work.

#### SUMMARY

1. Surgery of the thorax has a definite though limited sphere.
2. Thoracoplasty should be reserved for those cases where pneumothorax is impossible or at least partial.
3. Better results are attained if the surgeon removes the ribs close to the spinal column.
4. The selection of cases and after-care will be in the hands of the physician, therefore close co-operation between the physician and the surgeon is of paramount importance.
5. A two-stage operation is "safer" than a one-stage.
6. There is very little noticeable deformity when the patient is clothed for the street.

#### CONCLUSIONS

If by this method one can offer some measure of hope to 35 to 55 per cent of the far-advanced cases who have failed to respond to the other known methods of treatment, then he is justified in the attempt.

#### BIBLIOGRAPHY

1. Archibald, E. W.: Extra-pleural Thoracoplasty and a Modification of the Operation of Apicolysis Utilizing Muscle Flaps for Compression of the Lung. *Amer. Rev. of Tuberculosis*, 1921, iv, p. 829.
2. Archibald, E. W.: Experience in The Surgical Treatment of Unilateral Pulmonary Tuberculosis. *Trans. of the Am. Surg. Assoc.*, 1922.
3. Archibald, E. W.: Discussion of Dr. Parfit's Article in *Transaction National Tuberculosis Association* 1922, p. 197.
4. Bull, P.: Extrapleural Thoracoplasty in the Treatment of Pulmonary Tuberculosis with an account of Thirty-seven Cases. *Lancet*, October 16, 1920, p. 778.
5. Jacobaeus, H. S. and Key, Elinor: Plastic Operations on the Thorax in Pulmonary Tuberculosis, p. 1. *Acta Chirurgica Scandinavica*, Stockholm, 56:1-88, 1923. Third supplement. *Ab. Jour. of the A. M. A.*, vol. 81, No. 7. p. 617.
6. Mariette, E. S.: Glen Lake Sanatorium and the Treatment Employed There. *The Journal-Lancet*, March 1, 1922.
7. Parfit: Extrapleural Thoracoplasty in the Treatment of Pulmonary Tuberculosis. *Transaction National Tuberculosis Association*, 1922, p. 197.
8. Sauerbrück: *Chirurgie Der Brustorganen*, Band 1, Zweite Auflage.
9. Saugman, C.: The Results of Pneumothorax Treatment of Pulmonary Tuberculosis, *Lancet*, October 2, 1920, p. 685.
10. Shortle, A. G. and Gekler, W. A.: A Report of Four Recent Cases of Thoreicoplasty, *Jour. of the A. M. A.*, vol. 78, No. 3, 168.



## THE DIFFERENTIAL DIAGNOSIS BETWEEN APPENDICITIS AND URETERAL CALCULUS\*

BY THEODORE H. SWEETSER, B.S., M.D.

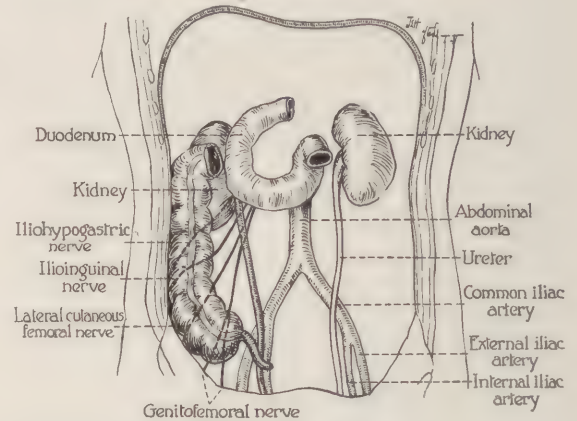
Associate Urologist, Minneapolis General Hospital; Instructor of Pathology, University of Minnesota, Medical School  
MINNEAPOLIS, MINNESOTA

My special interest in the differential diagnosis between ureteral calculus and appendicitis was aroused by a perplexing case observed about two years ago. That others have been puzzled is well shown in the reports of several series of cases published in the last few years. Of A. B. Cecil's 300 cases<sup>1</sup> of disease of the kidneys and ureters showing abdominal pain, 67 were cases of stone in the kidney or ureter. Of the 67 the diagnosis had been missed in over 30 per cent; and in 21 per cent the erroneous diagnosis had been appendicitis; 13.5 per cent of the 67 cases had actually undergone appendectomy without relief. Judd,<sup>2</sup> in reporting 400 operations for removal of stones in the ureter, stated that 144 of the patients had undergone other previous fruitless operations, and that among those previous operations had been 54 appendectomies, or a percentage of 13.5. Hugh Cabot<sup>3</sup> found histories of previous needless operations on 26 patients in a series of 157 patients with stone in the kidney or ureter studied at the Massachusetts General Hospital; and 10 of the patients had undergone previous appendectomy.

That the reverse error in diagnosis can be made will be shown farther on, but I have no statistical series regarding the percentages. A statistical study of the problem from that angle would be very difficult for several reasons. Individual cases, however, can be cited.

In considering the diagnosis of a case of either appendicitis or ureteral calculus, one has, of course, to keep in mind almost every abdominal and pelvic disease; we are limiting ourselves here to the two diseases alone.

*Anatomy.*—The ureter begins at the outlet of the renal pelvis, medial to and a little above the lower pole of the kidney, descends on the anterior surface of the psoas muscle, crosses the pelvic brim at the lower end of the common iliac artery or the beginning of the external iliac artery, turns backwards and outwards along the lateral pelvic wall to a point about an inch in front of the spine of the ischium, and curves forward and medially on the levator ani muscle



to the bladder wall, which it perforates obliquely. In the last three inches of its course, the ureter, in the male, passes between the posterior wall of the bladder and the anterolateral aspect of the rectum, crossing behind the vas deferens and entering the bladder wall anterior to the upper end of the corresponding seminal vesicle. In the female, this terminal portion of the ureter passes along the base of the broad ligament, crosses behind the uterine artery and runs downward across the lateral fornix of the vagina and between the vagina and bladder, entering the bladder about one inch below the level of the external cervical os.

At its upper end the right ureter lies behind the third portion of the duodenum; but otherwise the abdominal part of each ureter is in close connection with the peritoneum, the spermatic or ovarian vessels alone crossing in front of it. The genitofemoral nerve passes close behind the ureter about half way between its beginning and the brim of the pelvis. The abdominal portion of the ureter is crossed also by the left colic and sigmoid branches of the inferior mesenteric artery on the left, and by the right colic and ileocolic branches of the superior mesenteric artery on the right. The sympathetic nerve plexuses that accompany those arteries communicate fairly closely with the sympathetic nerves of the ureter and kidney. Finally, if the appendix extends medially, or medially and upward, it may cross in front of the right ureter above the brim of the pelvis.<sup>4</sup> We are not con-

\*Presented before the Hennepin County Medical Society May 7, 1923.

cerned with the relationship of the ureters to other abdominal organs.

The appendix may occupy many different positions. When it extends upward and medially behind the mesentery, it is in fairly close relationship with the right ureter. It may cause confusion when it extends downward into the pelvis in close proximity to the innervation of the bladder or down to the bladder itself. It may also extend upward behind the cecum and colon as far as the renal pelvis and kidney.

*Differential diagnosis.*—In perfectly typical textbook cases of appendicitis and of ureteral calculus the differentiation is not particularly difficult.<sup>5</sup> Acute appendicitis has its acute onset of pain in the epigastrium or umbilical region, with vomiting, its subsequent localization of the pain in the right lower quadrant, with tenderness over the site of the appendix, and its abdominal rigidity usually on the right side and most marked over the appendix. Fever and leucocytosis are usually present. A chill is rare.

Patients with stone in the ureter, on the other hand, usually have very severe sudden attacks of pain in the lumbar region or loin, radiating along the ureter to the external genitalia or down the inner aspect of the thigh. They have also frequency, urgency, and painful urination, gross or microscopic hematuria, and tenderness, which is usually in the lumbar region and may be in the abdomen along the course of the ureter. There is often a chill at the onset; vomiting commonly occurs; fever and leucocytosis are absent; there is no abdominal rigidity. Radiographic and special urological studies confirm the diagnosis. If the stone is in the lowest three inches of the ureter it may be felt through the vagina or rectum. If the differentiation were always so clear, the statistics would not show the error of 8 to 13 per cent and higher.

#### VARIATIONS FROM THE TYPICAL ACUTE APPENDICITIS ATTACK

To begin with, it must be remembered that the initial pain in acute appendicitis has typically the same paroxysmal or colicky character that is found in renal colic, and that in recurrent attacks it may be referred immediately to the right lower quadrant. The secondary constant pain in appendicitis may have some location other than the right lower quadrant. If the appendix be retrocecal and extend upwards, the pain may be referred to the flank, back, or kidney region. In such cases, if the appendix be extraperitoneal, there may be no abdominal rig-

idity. If the appendix extend down into the pelvis, the pain may be in the left lower quadrant, in the left side of the pelvis, or referred to the testicle; in such cases there will usually be frequency and urgency of urination. If the appendix be directed upward and inward behind the mesentery so that it would lie on the psoas muscles, it might be in close relationship with the femoral nerve, with consequent reference of the pain down the thigh to the knee or lower. In some such cases the appendix rather lies in the proximity to the genito-femoral nerve, with reference of the pain to the testicle or vulva and the inner aspect of the thigh; if, with this, there should be retraction of the testis, the similarity to renal colic would be still more marked. Even further, with the appendix in this last position, extending upward and inward behind the mesentery, it would be close enough to the right ureter to cause localized peri-ureteritis and ureteritis, which would give rise to hematuria or pyuria of greater or less degree.

Deaver has described the case of a physician's son whose operation for acute appendicitis was dangerously delayed because of such a syndrome. All the above described variations in the symptomatology of appendicitis make more difficult the differentiation from ureteral stone. Our recent autopsy records at the University<sup>6</sup> include a case of "acute gangrenous ruptured appendicitis with generalized peritonitis" in a man who had been under the care of a doctor who found blood in his urine, treated him for a week, and then sent him to the General Hospital under the diagnosis of "Acute Abdomen." The patient died on admission.

#### VARIATIONS FROM THE TYPICAL SYMPTOMS AND SIGNS OF URETERAL CALCULUS

Presence of gross blood or, at least, of a few red blood cells in the urine may mean stone or ulceration anywhere in the urinary tract. Absence of blood, on the other hand, has been considered an important point against a diagnosis of ureteral or renal calculus. However, it is generally agreed at the present time that, in cases of ureteral calculus, the urine may contain only a few pus cells, or albumin alone, or may be entirely normal. Cabot<sup>3</sup> found the urine entirely and persistently normal in over 14 per cent of 150 cases. This was true in a little over 10 per cent of Cecil's 67 cases.<sup>1</sup> Bladder irritability is characteristic of most cases of ureteral stone, but may be absent in a considerable percentage,—26 per cent of 294 cases were reported by Braasch and Moore.<sup>7</sup>



The greatest confusion, however, comes from the variations in the location and character of the pain. Of Cecil's 67 cases there was typical renal pain in only 21, and over 28 per cent of all the cases showed abdominal pain alone. In the cases in which the pain was present in the lower right abdomen, it occurred at or close to McBurney's point. The location of the pain does not necessarily indicate the situation of the stone. For instance, a calculus in the renal pelvis may give pain referred only to the suprapubic region, while a stone close to the bladder may be associated with pain in the back or right upper abdominal quadrant. The pain may radiate upward or downward or to the back, but in many cases there is no radiation.

One of our cases of ureteral stone gave the history of an attack two years previously, with sudden pain in the right lower quadrant and right lumbar region, and with nausea and vomiting; she had at that time been taken to a Minneapolis hospital, and on the next day the appendix had been removed. The operative wound became infected, was opened twice, and allowed to drain for some months. There were no more attacks for six months, but in the last fifteen months before we first saw her there had been five or six similar attacks of severe colicky pain with nausea and vomiting. In this case, by the way, the stone was palpated through the vagina, and the diagnosis was corroborated by *x*-ray, cystoscopy, and passage of the stone.

Sanes,<sup>8</sup> last year, in discussing the confusion due to the location of pain from ureteral calculus, told "how a ureteral inflammation, resulting from extension of an appendiceal inflammatory process, may be entirely overlooked, and how the symptoms of ureteritis or ureteral strictures after an appendectomy may be ascribed to post-operative adhesions."

Tenderness may be present near McBurney's point, in case a calculus, impacted above the pelvic brim, has set up a local ureteritis; however, rigidity of the right rectus muscle seems to be fairly rare in cases of ureteral stone. It was mentioned in one case reported by Cabot<sup>9</sup> in 1910, and was present in one of our cases in which the diagnosis of stone is probable but not absolutely proved. This sign does not seem to be discussed in the literature as a sign of ureteral calculus, but in cases with a local ureteritis it might be explained by the close association of the ureter and the posterior parietal peritoneum.

Nausea and vomiting are commonly found

with both appendicitis and renal colic. Some cases of renal and ureteral calculus have gastrointestinal disturbances without any pain or with comparatively very little pain; such cases sometimes undergo long treatments for some gastrointestinal disorder. Fever and leucocytosis are absent in uncomplicated cases of ureteral calculus, but may be present in case of secondary infection,—pyelitis, pyelonephritis, or pyonephrosis. In one of our cases we were led astray by this circumstance.

A woman 47 years old had had onset of pain and soreness in the right side of the abdomen three days previously. She had vomited at the onset; she thought she had had fever. The pain had been "dead" in character since the onset, but last night had become more severe. She had suffered from a similar attack two years before, which had, however, lasted only three hours. On admission to the hospital, at 5:30 P. M., her temperature was 100.2°, her pulse 100, and her respiration 20. Examination showed a thick layer of abdominal subcutaneous fat, no apparent rigidity or reflex spasm, and no masses; there was tenderness at McBurney's point. The leucocyte count was 13,000. The urine showed erythrocytes and leucocytes microscopically. Exploratory operation was performed the same evening. The appendix was thick-walled and filled with fecal matter, and the meso-appendix contained much fat. The uterus showed several small subserous myomas, one of which was shelled out. The tubes and ovaries, and the gall-bladder, stomach, and duodenum were normal. The right ureter was carefully examined from the bladder upward, and no stone could be felt in the ureter or the right renal pelvis. After the operation the wound healed perfectly and she felt well. However, about six weeks later she had an attack of pain in the right lower quadrant, and this time had frequent urination and pyuria. Urinary calculus was diagnosed; she later passed the stone, and has had no trouble since.

From the above discussion, it will be seen that it is not always safe or possible to diagnose either acute appendicitis or ureteral calculus from the history, physical signs, and urinalysis. Usually, with care, there will be found somewhere a symptom or sign giving warning that the diagnosis is not as clear as it at first appears to be. In the city with first-class hospital facilities it is usually justifiable to take at least time to obtain a radiograph of the abdomen and pelvis, to rule out renal calculus if possible. A stone will

cast a shadow in 85 per cent to 90 per cent of cases. Simple radiography, however, is open to three sources of error: (1) an extra-ureteral mass may cause a similar shadow (phlebolith, calcified lymphnode, gall-stone); (2) the shadow of a ureteral stone may be obscured by the superimposed shadow of a bony structure; (3) the stone may not have a composition sufficiently impervious to  $x$ -rays to throw a contrasting shadow. Changing the position of the patient or the angle of the tube may bring into view a stone previously obscured by some bony structure.

Usually suspected shadows must be proved by cystoscopy and ureteral catheterization. Cystoscopy may show the stone at the ureteral orifice; the ureteral orifice may be edematous, pouting, and red; there may be bloody or cloudy urine coming from the opening; the urine may dribble out instead of coming in a good swirl. These latter appearances may mean stone, or they may simply mean some inflammatory condition in or near the ureter or kidney. A radiographic catheter passed up the ureter may or may not meet obstruction. At any rate, a radiograph made with the catheter in place will almost always demonstrate whether or not the suspected mass is in the ureter. The determination can be made more certain by making two exposures on the same plate, moving the tube an inch between exposures<sup>10</sup>; if the mass is in the ureter its shadow will move with the shadow of the catheter; if not, then the shadow of the mass will be separated from that of the catheter in one or the other of the exposures. That even this is not absolutely infallible is shown by a report from Stevens of San Francisco.<sup>11</sup> In his case, the röntgenogram showed a shadow in contact with the bismuth catheter in the ureter. At operation the tip of the appendix was found attached to the ureter; and in the appendix there was a concretion, which had given the shadow.

Further information can be obtained as to the condition of the kidney by collection of a sample of urine from the ureteral catheter, and finally by making a ureteropyelogram. Chance of unpleasant or injurious effects is almost entirely avoided by use of the nontoxic sodium iodide solution, by injection of only a small amount of fluid through small-sized catheters slowly and by gravity, and by draining away the fluid before removal of the catheter.<sup>8</sup>

To illustrate the value of these special examinations we will cite the case of a woman 41 years old who had undergone an appendectomy one

year previously without relief. Five weeks before admission she had had an attack of sharp pain radiating from the right lumbar region to the right lower abdominal quadrant and down the right leg. There had been nausea and vomiting at onset, and off and on since then. At the onset her temperature had been 104°, and on admission was 99.6°; her pulse was 90, and her respiration 20. Her abdomen showed tenderness at McBurney's point and a tender kidney. The urine showed a moderate number of pus cells; her leucocyte count was 11,700. Cystoscopy and ureteral catheterization were negative as to the left side; however, there was only a dribble of pale, slightly turbid urine from the right ureteral orifice, and a catheter could be passed only 15 cm. up the right ureter. X-ray showed catheter pointing to the shadow of a stone; injection of sodium iodide solution intensified the shadow; the solution flowed back along the catheter into the bladder. Operation showed a pyramidal stone located 3 cm. below the pelvic brim completely blocking the ureter. The ureter above the stone was markedly dilated. On removal of the stone by the extraperitoneal route, a large amount of green purulent fluid poured out through the opening, coming from above the stone. This patient is well and has had no further trouble in more than two years since her operation.

Use of the above-described urological studies may save many patients from unnecessary treatments and operations, and is recommended for use when patients are in hospitals and can be watched carefully. In most cases, at least a simple  $x$ -ray can be made without dangerous delay. It must be emphasized, however, that such studies should not be used in place of clinical judgment. An exploration of the abdominal cavity in cases of ureteral stone, though not to be recommended if avoidable, still is not so dangerous as is prolonged delay in cases of acute appendicitis with the idea of securing a more exact and certain diagnosis.

#### BIBLIOGRAPHY

1. Cecil, A. B.: Abdominal Pain in Diseases of the Kidney and Ureter. *Jour. of the A. M. A.*, 75:1239, November 6, 1920.
2. Judd, E. S.: The Results of Operations for the Removal of Stones in the Ureter. *Ann. Surg.*, 71:128, February, 1920.
3. Cabot, Hugh: Stone in the Kidney and Ureter: A Critical Review of 157 Cases: *Journ. of the A. M. A.*, 65:1233, October 9, 1915.
4. Morris, Henry: Diseases of the Kidney and Ureter, vol. ii. W. T. Keener and Co., Chicago, 1903.
5. Campbell, W. F.: *Surgical Anatomy*, 1911, p. 455.
6. Deaver, J. B.: *A Treatise on Appendicitis*. P. Blakiston and Co., Philadelphia, 1900.
7. Morris, Henry: Diseases of the Kidney and Ureter, vol. ii.
8. Deaver, J. B.: *A Treatise on Appendicitis*, as above.



6. University of Minnesota, Department of Pathology, Autopsy, A-22-630, 1922.
7. Braasch, W. F. and Moore, A. B.: Stones in the Ureter. Jour. of the A. M. A., 65: 1234, October 9, 1915.
8. Sanes, K. L.: Ureteral Obstruction: Failure to Recognize the Condition as a Frequent Cause of Unnecessary Operation. Jour. of the A. M. A., 78:475, February 18, 1922.
9. Cabot, Hugh and Dodd, W. J.: The Diagnosis of Stone in the Pelvic Portion of the Ureter: A Preliminary Report on Certain Limitations of Radiographic Diagnosis and a suggested Remedy. Boston M. and S. J., 163: 85, July 21, 1910.
10. Kretschmer, H. L.: Diagnosis of Ureteral Calculi: Surg. Clin., Chicago, 3:1503, December, 1919.
11. Stevens, W. E.: Discussion of paper by A. B. Cecil (No. 1, above) Jour. of the A. M. A., 75:1244, November 6, 1920.

## DISCUSSION

DR. A. G. WETHALL (Minneapolis): This paper is very interesting to me. I wish, however, to mention the indigo-carmin test as being of great value in these cases. I have noticed that in case of stone in the ureter the function of the kidney, on the side where the stone is found, is wanting. The indigo-carmin is given intravenously, and in a few minutes the color appears if the kidney is normal or if there is no obstruction.

## THE SIGNIFICANCE OF VITAMINES IN THE DIET OF INFANTS AND CHILDREN\*

BY FREDERIC W. SCHLUTZ, M.D.

Chief of the Department of Pediatrics, University of Minnesota

MINNEAPOLIS, MINNESOTA

Experimental investigation of quite recent time, notably the work of Funk, Stepp, McCollum, Osborne and Mendel, A. Hess, Dutcher, McClendon, Palmer and Kennedy, and many others, has shown beyond doubt that there are essential factors in the food other than the well-known components,—protein, fats, carbohydrates, and salts. The presence of such factors in sufficient amount is absolutely essential to proper growth and development of the animal organism. In this class fall the substances known as *vitamines*.

Our knowledge concerning the chemistry and composition of these substances is still meager and still quite obscure, although they are a constituent in some form or other of nearly all food stuffs. They seem to be organic substances, but further than this nothing is definitely known about their structure. They do not seem to fall in the class of proteins, fats, or carbohydrates.

Any food decidedly deficient in, or with complete absence of, one or the other of these substances will produce, if given over a long period, the symptom complex of deficiency diseases. It is believed that the so-called deficiency diseases are essentially avitaminoses.

The experimental research on vitamins has been confined almost entirely to the laboratory animal, and the results observed there have been transferred by analogy to the human organism. There may be some criticism as to the feasibility of this type of research and its practical interpretation and application. In defence, however, of such criticism one can cite the opinion held

by the eminent British biochemist, F. G. Hopkins, who considers all nutritional phenomena as basal phenomena. They may differ in detail, but fundamentally they are the same in all animals. Any circumstance which involves absolute failure in the fundamental nutrition of any kind of mammal will most certainly be liable to produce untoward results of some kind in the case of any other mammal. It would seem, therefore, safe to compare results obtained with the laboratory animal with clinical pictures observed in the human organism where nutritional factors seemed to be the causative factor in the development of symptoms.

The complete isolation of the different vitamin fractions has proved very difficult and, so far, has baffled the efforts of the biochemist. The knowledge we have of them is fragmentary and quite incomplete. McCollum suggested the designation of the different fractions by alphabetical letters. This terminology is now universally accepted, and we speak, therefore, of an A vitamin, or the fat-soluble; a B vitamin, or water-soluble; and a C vitamin. To these McCollum adds a D vitamin; and it seems as investigation progresses that there will be others added in the course of time.

The fat-soluble A vitamin is a substance of unknown nature which accompanies fat or fat-like substances and is soluble in their presence. It is also soluble in alcohol and ether.

Stepp, McCollum, and Osborne and Mendel showed that the animal organism will not grow or thrive properly if this accompanying substance is not present in the fat of the food ration. Little is known about its chemical struc-

\*Presented before the Hennepin County Medical Society, September 10, 1923.

ture. It is stable to drying and ordinary heating, such as occurs in cooking. Weak acids or alkalies affect it very little, but it is almost completely destroyed by hydrogenation. For this reason, lard substitutes are deficient in vitamine A. Oxidation or even vigorous aëration will partly or completely destroy the vitamine A fraction.

The principal deficiency or defect that manifests itself with complete and continued absence in the food ration of vitamine A is distinct retardation of growth. This effect is particularly noticeable in the young, actively growing organism. This influence upon the growth of tissue is a characteristic common to all the vitamins. If the B or C fraction is absent, growth will be retarded even if A is present in sufficient amount. The presence of all of the fractions, or at least of the three, A, B, and C, are necessary for the proper growth of tissue.

Aside from its general stimulating effect on growth, the fat-soluble A fraction exercises a specific effect upon corneal tissue and upon the skeletal system. Its complete absence in the dietary quite rapidly leads to profound disturbance in the nutrition of the cornea as expressed in the development of xerophthalmia and keratomalacia, and similar marked effect on the bony system, in the form of osteoporosis or osteomalacia.

The fat-soluble vitamine A is very widely distributed in nature and is found in both animal and plant life. Green vegetables, and particularly the leaf vegetables, such as spinach, are rich in vitamine A. Vegetable oils and fats contain only moderate quantities, and these can easily be entirely removed in the process of purifying such oils and hydrogenating them in the preparation of lard substitutes. All animal fats contain fat-soluble vitamine A. This is particularly true of the fat of animals whose chief subsistence is on plant life, preferably green fodder. The milk of domestic animals, such as the cow, goat, or ass, is rich in vitamine A. The same is true of butter fat and egg yolk. The food the animal consumes influences the vitamine content of its secretion and tissues. It is greater in the summer months when the animal has access to green, fresh plant life, and less rich during winter months when recourse must be had to dry feeding. Pig lard is comparatively poor in the vitamine A fraction. This is partly due to the lack of green fodder the pig consumes and partly to the oxidation the lard undergoes in the process of rendering.

Vitamine A is abundantly present in liver fat,

particularly cod liver oil. It is quite probable that the animal organism is capable of storing vitamine A and will draw upon such stored sources for a long time in the face of deficient diet. This seems to be true only of the fat-soluble A fraction and not of other vitamins.

The water-soluble vitamine, or antineuritic vitamine, was first discovered by Casimir Funk. Vitamine investigations really had their starting-point with the development and study of the characteristics of this vitamine fraction. Funk discovered that the polyneuritis gallinarum, first discovered by Eijkman, was due to the absence in the food ration of this water-soluble B fraction.

The chemical structure of water-soluble B is not known. The animal organism apparently is unable to synthesize it, and it is not stored. It is soluble in aqueous solution. Drying processes do not affect it, neither does the temperature of boiling water in neutral or acid solutions. Heating in alkaline solution and temperatures above 100° C. destroys it. Commercial canning and sterilization of vegetables and other food products involve these processes and necessarily cause considerable loss of the B vitamine. Smoking and drying processes have a similar though less pronounced effect. On account of its water-soluble nature much of it is lost in boiling or cooking processes if the liquid in which the substance containing the B fraction is boiled is rejected.

Of the different fractions vitamine B is the most essential to proper growth and development of the animal organism. If present in insufficient amount in the food or entirely absent, serious disorders in growth and metabolism quickly ensue. One of the earliest symptoms is a rapid and alarming decrease in the desire for food, accompanied by progressive debility. This is followed by the development of nervous phenomena, such as neuritis and various forms of paralysis.

Adequate or abundant presence of the water-soluble B vitamine in any food ration seems to have two very definite effects. It stimulates the appetite, thus increasing food intake, and it profoundly influences metabolism and growth. Dutcher suggests that it may possibly act as a stimulant to endocrine organs.

In view of its apparent importance to the animal organism, it is fortunate that vitamine B has the widest possible distribution in nature. The largest amount is found in unicellular organisms, such as yeast. It is universally present



in plant life, particularly in all grains and cereals; all green leaves are rich in vitamin B. In grains the largest supply is in the embryo situated near the surface immediately under the cellulose membrane. In the polishing of rice or the milling of our favorite patent flour, this part of the grain is almost entirely removed, thus causing these widely used food stuffs to be practically free of vitamin B. Of the vegetables, carrots, spinach, some of the beets, raw cabbage, beans, and peas contain the largest amount. Potatoes have a lesser amount. Among the fruits, tomatoes, oranges, and lemons and other citrous fruits, and grapes have the largest amount. Apples and pears have little, and bananas hardly any vitamin B.

In the substances of animal origin, milk and eggs head the list. Liver, brain, kidney, and heart muscle contain considerable vitamin B. There is very little in other forms of meat and very little in fish foods.

Vitamin C, or the anti-scorbutic factor in food substance, was discovered by the Norwegian investigators, Axel Holst and Theodore Frölich. They demonstrated conclusively that scurvy was a deficiency disease which was not influenced by the presence of vitamin A or B in the food ration, but was favorably influenced or cured by the presence of a third substance, the vitamin C. Scurvy develops rapidly if the animal organism is deprived of this vitamin by giving food which does not contain it.

Practically nothing is known of the chemical structure of vitamin C. It is soluble in both alcohol and water and is much more easily destroyed by external influences and procedures than either Vitamin A or B. It is easily destroyed by heat, with this difference, however, that prolonged heating at low temperature much more effectively destroys it than brief heating at high temperature. Prolonged heating under low pressure, such as occurs in the canning processes, almost completely destroys it. It is also destroyed by drying processes and moderate heating in the presence of alkaline reaction, but not in the presence of acid reaction.

The chief effect of the absence of C vitamin in the diet is the development of a hemorrhagic diathesis and the symptom complex scurvy. The teeth seem to be the tissue earliest affected in the absence of C vitamin. The researches of McCarrison would indicate that the C fraction has something to do with the production of adrenalin. McCollum and Parsons found that its presence was essential to normal metabolism.

This is particularly true of the growing organism.

The distribution in nature of the C vitamin is rather more limited than that of the other fractions. It is contained in fresh vegetables, such as cabbage, beets, onions, peas, lettuce, spinach, turnips, and to some extent in potatoes. It is particularly abundant in citrous fruits, such as orange, grape fruit, lemon, and in tomato. There is a good deal of C vitamin in cow's milk and in eggs, particularly if these animals have access to green fodder. All prepared milks and most of the meats are deficient in vitamin C. It is quite abundant in germinating seeds. On account of its limited distribution in nature and its great susceptibility to influences of temperature and other chemical processes, C vitamin is most apt to be deficient in a food ration.

McCollum advances the theory that there is a fourth vitamin, specific in the cure of rickets, and that this vitamin fraction is present in cod liver oil, known for years as a specific remedy in rickets. The presence of this vitamin favors a more complete metabolism of the element calcium. There is, however, considerable controversy upon this point. The existence of a D vitamin and its relation to the symptom complex, rickets, is hardly definitely established and requires more experimental proof.

It is quite clear from the discussion of the different vitamin fractions that all have a pronounced effect on metabolism and are substances essential to its proper functioning. It seems quite unlikely that the animal organism possesses the faculty of synthesis of these substances, obtaining them only from the food consumed and using them directly in such form as they are offered or after suitable modification. The fact that their effect is particularly pronounced upon the growing organism adds importance to their consideration in the dietary of the infant and growing child.

For the infant, mother's milk, milk from domestic animals, milk preparations, or substitutes are the agencies by which its organism procures the necessary vitamins. The readiness with which all the fractions pass into cow's milk and the influence the type of feeding has on the vitamin content of the milk raise the interesting question whether such effect is possible on mother's milk. It is undoubtedly safe to assume that such effect is possible. The interesting experimental work of Chick and Dalyell on Viennese infants and the diet of their nursing mothers proved this quite conclusively. Without increasing the amount of breast secretion, they could

alter its composition and effect by additions of suitable vitamine-rich substances and produce marked weight gains in the infants.

It is necessary in selecting the diet of the nursing mother to have regard for adequate vitamine content in the food. In some experimental work recently carried on at the University of Minnesota Farm School by Palmer, Kennedy and the author it was found that breast milk is rather low in fat-soluble A, but comparatively rich in water-soluble B vitamins. Further experimental work is in progress to show to what extent the diet of the mother influences the relative content of these fractions and what additions are most suitable to increase the rather definite low content of fat-soluble A. Cow's milk and the milk of other domestic animals are rich in all three factors provided the animal has access to green fodder. The dangers of highly sterilized milk, or dried or condensed milk, or other substitute food preparations commonly used in infant feeding are probably largely due to the destructive effect of drying or heating, or other forms of oxidation on the different vitamine fractions. The use of these foods should be avoided wherever possible.

The practice of feeding solid foods, such as cereals, breads, vegetables, and fruits, to the infant early is becoming very general and probably owes its favorable effect in no small measure to the vitamine content of such foods and the effect it has on the growing organism. This practice is a distinct advance in infant feeding.

The vitamine requirement of the diet of the older child presents less of a problem. On account of the wide distribution of practically all the vitamins in nature, it is quite unlikely that minimum requirements would not be met in most cases. It is, however, clear from the prepon-

derant distribution of all vitamins in plant life that it is desirable to stress, in the growing child's diet, fresh vegetables, especially the leafy varieties and others, such as cabbage, carrots, peas, and beans, as much as possible. The less the cereals are subjected to refined milling processes, the greater will be their vitamine content, and the more suitable are they for a child's diet. Among the fruits, the citrous fruits and tomato should have a prominent place and should be liberally used. Eggs and milk are, under proper conditions, very rich in all vitamins and should be freely given unless there are contra-indications because of idiosyncrasies. Of the fats, butter and suet are better than vegetable oils and are much superior to lard and lard substitutes.

Food that has been subjected to prolonged heating or aëration, such as occurs in sterilization, canning or preserving processes, is best avoided if a fresh product is available. Commercial vitamine products have flooded the market in recent years. Their efficacy is hardly tested and in most instances rests upon very doubtful claims. Such preparations should hardly have the endorsement of the medical profession unless they are fortified by substantial experimental proof.

It is obvious from the brief sketch submitted that we are only on the very threshold of our knowledge about vitamins. There has been some interesting progress, and much information has already proved useful and far reaching in its effect on the prevention of nutritional disorders. There is every indication that the extensive researches continually in progress in this field will finally reveal the nature of the structure and characteristics of these interesting substances and show why they are apparently so essential to animal life.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of February 13, 1924

DR. A. S. HAMILTON, Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, February 13, 1924, at 8 P. M. The meeting was called to order by the President, Dr. Hamilton. There were 38 members and 5 visitors present.

The following members reported cases:

Dr. E. L. Tuohy of Duluth, gave a résumé of cases and records, and a method of showing typewritten data on lantern slides.

Lantern slides were shown with very abbreviated summary of case records. This typed material was fastened to the ordinary lantern slide, according to a method which makes unnecessary any photo-



graphy whatever. Lantern slides can be made in a matter of a very few minutes by typing directly upon what is known as "Radio-Mat" slides.\*

A case was shown with lantern slide of the Röntgen picture of the lungs which prior to autopsy was taken to be miliary tuberculosis. This diagnosis was substantiated by the gross examination of the lungs themselves; however the microscope examination of the tissues revealed miliary carcinomatous metastases, and the original source was found to be annular scirrhous carcinoma near the pylorus.

A record was shown of a forty-five year old woman with moderately advanced pulmonary tuberculosis. Her gastro-intestinal symptoms were attributed to either the toxemia of the advancing tuberculosis, or late invasion of the gastro-intestinal tract, resultant from the terminal depression of her vitality and immunity. On autopsy a few small ulcers were found in the intestine, and a very few tubercles over the surface of the peritoneum; however a definite large, non-tuberculous gastric ulcer was found. (Specimen was shown.)

The record of a man, aged 50, was shown, who had fully-proven chronic endocarditis with mitral stenosis and auricular fibrillation. A period of restored health was interrupted by much gastric irritability. It might have been assumed that this was entirely secondary either to digitalis medication or to the common visceral congestion incident to the heart state. On the contrary, careful Röntgen and food relief, established with certainty the diagnosis of duodenal ulcer. The customary frequent feedings and alkalies have very promptly given him relief.

A case record was similarly shown of a man, aged 33, with an early history of throat infection, otitis media, and running ears. Recently he developed dyspeptic signs, with characteristic food relief, two or three hour pain after eating, etc. This state of affairs yielded in a short time to a situation in which he did not have food relief nearly so constantly, and his distress followed soon after eating, with a burning sensation in the epigastrium communicated up into the chest. Careful Röntgen studies showed up a definite defect in the duodenum, but in addition also a penetrating ulcer in the lesser curvature. The latter was evidently of more recent origin, or at least activity, than the former. Realizing the great importance of focal infection and the situation obtaining with his running ears, this was the quandary: one of his ears is good; the other is bad from the standpoint of hearing; what advantage would there be by taking a chance of operating upon his bad ear, to limit focal infection, without attacking the other? Is it not better for him to take a chance even with his ulcer, on ordinary treatment, than to endanger the good hearing he has in one ear by radical operation?

Three cases were shown in brief in which at autopsy primary carcinomata of the bronchi were proven up. In all of these cases metastases had occurred to the spinal column (illustrating the ac-

cepted frequency of this type of bony invasion on the part of bronchial carcinoma).

One of these cases presented itself with an outspoken swelling over one parietal bone, strongly suggesting lues. A biopsy readily showed it to be a malignant metastasis.

In only one of these three cases was there particular cough or manifest chest symptoms. It can be said at least that without very careful and accurate post-mortems the origin of these malignancies would have been overlooked, and thereby the probable frequency of primary carcinoma of the bronchial tubes underestimated.

One of these cases presented the curious picture of definite kidney tumor, which with easily recognizable metastases into the spine made the probable diagnosis of the fairly common condition of hypernephroma most likely. The autopsy in this case showed bilateral hydronephrosis incident to calculi, shadows of which did not appear in the original spine pictures taken with the intention, because of obvious spinal compression, to show vertebral column detail.

Dr. A. E. Benjamin reported a case of obstructive jaundice:

Mrs. S., age 48, female, weight 210 pounds, farmer's wife.

Family history: Father died of tuberculosis; mother 82, in poor health; four brothers well, one died in infancy; three sisters well, one died at 42 of gall stones.

Personal history: Has had children's diseases. "Stomach trouble for years." Attacks of acute indigestion from special foods. Attacks would last twenty minutes. Would become distended with gas, and had vomiting spells. Considerable belching of gas; bowels, habitually constipated, saline cathartics would relieve her of some of the stomach symptoms. Has always had kidney trouble.

Complaint: Taken ill about the middle of November. Very nervous. Pain in lower part of abdomen. No backache except low down across the hips. No pain over gall-bladder. Pain would extend to left, under ribs. Jaundice began about Thanksgiving time, but not marked until about three weeks ago. Itching began at night when nervous. Would scratch and cause bleeding. Some subcutaneous hemorrhage about January 20. Spots enlarged and spread. Few vomiting spells.

Chief symptoms: Jaundice and hemorrhagic painful swelling, anorexia, delirium.

Examination: Skin markedly jaundiced. Heart, lungs, nose, throat, and pelvis, negative. Subcutaneous hemorrhagic areas throughout skin, especially on abdomen and limbs. Considerable swelling of left leg, resembling thrombosis.

Laboratory report: bleeding and clotting time, forty-five minutes; Hgb., 50 per cent (Dare); red cells 3,180,000.

Diagnosis: Pre- and post-operative and pathological after autopsy, "obstructive jaundice."

Treatment: January 18, 1924, local anesthesia; vein at elbow exposed; 5 cc. 10 per cent sol. of calcium chloride injected slowly. January 19, 1924, local anesthesia; old incision at elbow opened; no vein avail-

\*These sheets can be secured from any of the dealers in moving-picture equipment and materials.

able; vein in foot was used; 5 cc. calcium choride injected. In the evening blood transfusion, given 500 cc. Patient died late at night.

Autopsy report: (Dr. J. S. McCartney, Jr., pathologist). Autopsy limited to examination through abdominal incision.

The body is that of a very obese white woman, 167 cm in length and weighing at least 210 lb. Rigor mortis is present. There is hypostasis posteriorly; no edema or cyanosis. Scattered over the trunk and extremities are numerous small blood encrusted areas. These in the beginning are said to have been petechiæ but now are covered by crusts. Scattered over the surface of the body are numerous bluish-black irregular areas which are not due to hypostasis and clinically were large hemorrhages. The body shows marked jaundice (Grade 3). The pupils are equal and regular.

Abdominal incision made. The subcutaneous fat over the abdomen is 5 cm. thick. In the fat in the incision an area of hemorrhage is found in the epigastric region. The peritoneal cavity contains no abdominal fluid. Scattered over the intestines are numerous subserosal hemorrhages, some of which reach 1 cm. in diameter; the majority are less than 5 mm. There is marked retroperitoneal hemorrhage, particularly posterior to the cecum and sigmoid. That about the cecum extends beneath the peritoneum onto the anterior abdominal wall. There are a few fibrous bands between the gall-bladder and the duodenum.

The pleural cavities and lungs palpated through the diaphragm; no lesions made out. The heart on palpation is normal in size; it is not removed.

The spleen is about normal in size; it is flabby; external surface is slightly wrinkled. On section it is light red in color, and the markings are rather indistinct.

The liver is of about normal size. The external surface is smooth. On section the organ is markedly bile-stained, the centers of the lobules being prominent. The gall-bladder contains several dozen faceted calculi, yellowish-white in color and averaging about 6 mm. in diameter. The cystic duct is very markedly dilated, measuring about 8 mm. in diameter. Calculi are found within the cystic duct. The common bile duct is a little larger than the cystic duct, and in it calculi are also found; one about 3 mm. in diameter is found just inside the ampulla. The common hepatic duct is about the size of the dilated cystic duct. Calculi are also found within it and in the right and left hepatic ducts up into the substance of the liver. No calculi are found farther than a point 3 cm. above the beginning of the common hepatic duct. The opening through the ampulla is of about normal size.

The stomach contains some cloudy mucoid material. No gross lesions are found in the mucous membrane. The pancreas is about normal in size and shows some fat replacement of the parenchyma. On following out the pancreatic duct it is found to open into the intestine through the ampulla separate from the common bile duct.

The right kidney weighs 140 grams, the left 150 grams. The capsules strip readily, leaving smooth surfaces. On section the organs show marked bile

staining and are slightly swollen and cloudy. A few petechiæ are found in the pelvis.

The uterus, tubes, and ovaries are apparently normal. The abdominal aorta shows a slight senile change. No further examination of this body is made.

#### Diagnosis:

1. Calculus obstruction of the common bile duct.
2. Dilatation of common, hepatic and cystic ducts.
3. Moderately distended gall-bladder.
4. Calculi in gall-bladder, cystic, common bile, and hepatic ducts.
5. Nephrosis of jaundice.
6. Marked jaundice.
7. Cutaneous hemorrhages.
8. Retroperitoneal hemorrhage.

Dr. J. F. Hammond reported the following case:

*Abdominal Criminal*

This patient was admitted to the City Hospital on February 3, 1924. A girl 17 years old, missed a period the first part of January and thought she was pregnant. She inserted a catheter with a wire stylet. The following day she began to bleed and had a good deal of pain. Three days later the pain was more marked in the lower abdomen and a physician was called who took care of her from that time until she was admitted to the hospital on February 3, 1924.

On admission it was difficult to get much history. Apparently she had had a stormy time. She did not give any history of chills, but had a lot of pain and a good deal of bleeding. She was admitted to the hospital in the early morning of the 3d. When I saw her she was very much distended, the abdomen being quite prominent. Temperature, 104.° No pain or tenderness, but marked distention and very rigid. She had a cough. I examined the chest, and the signs were a little irregular. I thought I found some dullness in the back on the right side. The breath sounds were markedly diminished, and I thought she probably had some fluid. The liver dulness was completely obliterated. I wanted to first find out about the chest condition and thought the easiest way was to take a picture of it. (X-ray shown.) Both lungs were shoved up to about the level of the third costal cartilage; the peritoneal cavity was distended with air. The patient seemed to be in extremis. Dr. Drake, Dr. Hall, and Dr. Daugherty saw her with me. Nothing much could be made out in the abdomen, but we felt we might drain her from below and improve her temporarily. We gave her a little ethiline and made a vaginal section. At least a gallon of pus and a large amount of air were evacuated. Cultures did not show that there was any bacillus *aërogenes* infection.

Although the abdominal distention went down considerably, four days later she was still having a good deal of labored breathing, the liver dulness was still obliterated, and I felt it might be well to drain from above. Under ethiline I made an opening just above the pubes. It was very interesting to see the way the intestines were walled off. Between the omentum and the abdominal wall



there was a space into which one could insert the hand without obstruction from the pelvic cavity to the top of the liver. Care was taken not to open the omentum, thus exposing the general peritoneal cavity.

Following this opening the liver dulness returned, and the abdomen was quite flat. The patient's breathing was improved. The day after the vaginal section an enema which was given promptly returned through the vaginal drain indicating a perforation low down in the intestinal tract.

This patient is still having a very bad time; she is very septic, and her pulse is weak. She is somewhat cyanosed at times. The outcome is very doubtful.

NOTE.—Since reporting this case on February 13, 1924, the patient died on February 15. I did not see the autopsy as I was out of town. The report states there was an abscess with feces between the liver and the diaphragm, also about the spleen. The only perforation mentioned was in the cecum. This would not coincide with the fact that an enema given returned at once through the vaginal drain.

#### DISCUSSION

DR. A. SCHWYZER: I think this is an unusually fine report. The picture shows the enormous upward bulging of the diaphragm. This reminds me of a case of splenic anemia where we removed the spleen after it had been reduced by radium, and when we looked up into that dome of the diaphragm it was receded in an extreme manner on the left side. Every heart-beat made a wave-like undulation on this paralyzed and highly receded diaphragm. The *x*-ray showed that for about two weeks it worked very little. It might be that we had to figure with a paralysis from an overdilatation of the diaphragm. The case of Dr. Hammond illustrates how valuable the omentum is. Here is shown one of the most important functions of the omentum.

Dr. M. S. Henderson, of Rochester, read his thesis, entitled "Osteochondromatosis of the Hip Joint."

#### DISCUSSION

DR. GEIST: Dr. Henderson has presented a topic of real scarcity. I have not seen disease of this type in the hip joint. Jones' work, to which Dr. Henderson refers, was done in Rochester and is a model of modern clinical research. The first case of this kind I ever ran into was about twelve years ago, and involved the ankle; all my other five or six cases have been in the elbow and knees. The ankle case was a heavy man, weighing over three hundred pounds. He had symptoms rather similar to locking of the knee joint; he had the sensation of being thrown and consequent effusion. The *x*-ray showed three or four bodies in the joint.

On opening the ankle the bodies were easily recognized. There were six or seven bodies entirely loose within the joint. In addition to this there existed about fifteen or twenty small osteocartilaginous bodies, which were still attached by means of pedicles to the synovial membrane. In fact, some of the pediculated bodies looked like enlargements of normal synovial villi. Some of the pedicles were fairly strong, and others were so frail that they were about to give way.

All of my cases were in adults, and it is very interesting to find Dr. Henderson's case existing in an adolescent. I think Dr. Henderson is to be thanked for presenting this very interesting topic. I should like to ask Dr. Henderson what method of approach he used in opening the hip joint.

DR. A. SCHWYZER: About a year ago I had a case which does, however, not quite belong to this group. Laying all the muscles back from the outer iliac fossa and thus freely exposing the hip joint we could open it, dislocate the femur very well, and see all the parts. At the lower border of the capsule near the acetabulum there were bodies, some of them attached only by a thread, some rather large and hard, and some of them boggy. I was quite impressed by the ease with which we could see all the parts of the joint after cutting the capsule wide open and dislocating the femur. There were no loose bodies, but they were attached by thin pedicles.

I think the case of Dr. Henderson is an unusually pretty one, and the *x*-ray pictures are very fine.

DR. HENDERSON (closing): The incision used was the Smith-Peterson incision, which in reality is a combination of the old Lärghy incision and the ordinary straight incision. We stripped the muscles down freely from the iliac bone, thus coming down upon the top of the joint. We then made a straight incision through the capsule and proceeded to remove the loose bodies.

Dr. Schwyzer's point is well taken. It might have been better to have made the incision larger and thrown the head of the bone out just as we do in an arthroplasty. Our hindsight is usually better than our foresight, and this might have given a better approach to the posterior part of the capsule, but of this I am not exactly sure. We might have been able then to reach the bodies in the posterior part of the joint.

I might add that we have used the Smith-Peterson incision now for some time in un-united fractures of the hip where we do a bone pegging operation, and it gives better approach than any other incision.

Dr. R. E. Farr gave a talk on "Some simple but useful adjuncts in the Practice of Surgery." Numerous lantern slides were shown.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
Minnesota, North Dakota, South Dakota and Montana

The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

APRIL 1, 1924

## DR. MORRIS FISHBEIN IN MINNEAPOLIS

The associate editor of the *Journal of the American Medical Association* came up to Minneapolis on the invitation of one of the University medical fraternities to deliver an address at the University on Wednesday afternoon, March 19. He was invited also, and responded very cordially, to lecture before the noon-day meeting of the Hennepin County Medical Society. His paper was reported to be on the preparation of a medical paper for publication. Doubtless a great many men went to hear that, but were joyously rewarded in hearing him read about the doctors.

In the main he left a very evident appreciation of the old-time general practitioner who seemed to know what he was doing, and without the "rattley-bang" of an electrocardiogram or a metabolometer, or any of the other various instruments for use in the making of accurate diagnoses. He thought, too, that the old doctor was in the habit of giving a good deal of medicine and that his prescriptions were rather of the shotgun variety, on the ground that if one thing didn't help the other might, and that he commonly combined his mixture with some spirits, which are now on the prohibited list, unless for the manufacture of tinctures. At all events, some of these nauseating, bad-smelling, evil-tasting concoctions did patients a lot of good, and they got over their pains without much fuss.

Dr. Fishbein took up the present decade of medical practice and presented a beautiful bouquet to most of the specialists, but it was noticed that the bouquet had a very sharp thorn in the center of it. He kept his audience in a roar of laughter over his many little witticisms and his account of how the doctors of the present day do business, how they ride around in Rolls-Royce machines and employ several assistants and a supply of nurses and everything is made as expensive as possible.

Then, with his delicate mental forceps, he picked up the surgeon, and it was a golden opportunity for laughter. Each of us in turn laughed as he criticised or ridiculed the surgeon for his inordinate appetite for operations. Of course he referred only to those who did unnecessary and useless surgery—that would be assumed—but at the same time he said many things that are directly applicable to present-day surgery.

He then picked up the obstetrician and the gynecologist, the latter of whom he called all sorts of things, showing the different ways of pronouncing the name of the latter. Here he showed the employment of many associates and the retirement of the obstetrician to his warm bed with directions that he be called when the head presented. He had a lot of fun with the obstetrician and his tendency toward the commitment of Cesarianism, and he had a wonderful time with the gynecologist and his methods of approach to the human pelvis.

For his further display of wit he selected the research man who did all sorts of things in pharmacology, chemistry, and the like, until, after the lapse of twenty or twenty-five years, he evolved a compound which had a name which was about a foot long, wholly unpronounceable except as Dr. Fishbein pronounced it, and wholly unknown as to its value, fault, or use.

Then, much to the editor's amazement, he selected the neurologist for his attack, and what he said about him was well worth saying. Incidentally, he gave the neurologist an opportunity to pick up any kind of a case that came along, because most patients complained of pain, and, if they were sufferers from pain, they had a nervous trouble. In fact, he copied from "Tonics and Sedatives," page 24, of the March 15th issue of the *Journal of the American Medical Association*, "Letters to Children," which typifies, from Dr. Fishbein's point of view, a man who practices neuropsychiatry. At all events it was awfully funny to the rest of the people,



even if not to the neuropsychiatrist, but he succeeded in getting a laugh out of it even if he was pricked in his most vain spot.

He selected then for his jibes the x-ray man. He did not have very much to say about him, but what he said was deadly. He intimated that the principle trouble was to determine who owned the plate after it was made—whether it belonged to the doctor, operator, or patient; and no decision was ever reached because no one could ever read the plate after it was made. He suggested that the solution was to have a number of plates made and present each one of the friends of the family with a picture.

His ridicule was next directed toward the nose and throat man, and what he did not say about him or to him was really not worth recording.

The editor is sorry to remark that some of the men were peeved, instead of taking a good tongue-threshing and accepting the criticism in a friendly spirit, because, after all, he was simply talking about the men who overdo their own special weakness.

Last, but not least,—and we are sorry we have not his manuscript in front of us,—he made a big drive at the registered and graduated nurse, who in some instances seemed to think her only function, was to see that her favorite doctor was called in on the case she was caring for. Of course, this he overdid or over-described, perhaps, but it indicated the feeling toward many nurses and left one rather with the idea that they needed a tremendous amount of waiting upon; and again this applied only to the few who are extremists and who are more or less impressed with their own importance rather than with the care of the case.

The editor believes that this sort of talk and criticism to the medical profession, even though it stings a little, is worth while because it does the profession good to be jacked up occasionally and looked at from the outsider's viewpoint. If we could have persuaded Dr. Fishbein to leave his manuscript it would have been published in full, but he informed us that it was only for talks before the doctors and not for publication.

In the evening Dr. Fishbein gave a very good paper upon "The Relation of the Medical Men to the Public Press," in which he commented upon the newspaper method of describing disease and cited many instances where mistakes in spelling and phrasing, etc., led to ridicule and error on the part of the paper and perhaps to the discredit of the man whom they were quoting. At all events the newspaper men who were

present at the evening meeting, representing the *Minneapolis Journal*, the *Minneapolis Tribune*, and the *Minnesota Daily Star*, were fair in their discussions and were rather in accord with the effort on the part of the Hennepin County Medical Society in its effort to appoint a publicity committee that will prepare material, or, at least, will pass upon material, as to its suitability for public digestion.

Incidentally, Dr. Fishbein told us of the great work that is being done in the offices of the American Medical Association and the information that is furnished as to the authenticity and reliability of certain statements or records or remedies which any newspaper can avail itself of at any time before printing something that is sensational or ridiculous.

### MINNEAPOLIS CLINIC WEEK

The work has been actively progressing in preparation for Clinic Week on May 6, 7, 8, and 9.

The Program Committee, which has done such good work before, has been re-appointed and will doubtless get out a very interesting program.

The one outstanding feature which we wish to emphasize is the presentation of "dry clinics." The first two days of Clinic Week, Tuesday and Wednesday, May 6 and 7, will be devoted to "dry clinics," which will be presented at the Unitarian Church, a block away from the Radisson Hotel, the Clinic headquarters. This is arranged in order to accommodate the visiting men who want to see the patients and the men who present the cases and make the diagnoses. These clinics will be arranged so that all who are in attendance can be seated in one room, thereby offering an opportunity for the clinician to present a patient to a larger number of physicians and surgeons.

Thursday and Friday will be devoted to "wet clinics" or hospital clinics such as we have had before, and it is expected that these clinics will be supplemented in various ways by the attractive program which is offered by the Minneapolis Health Exposition of which we can speak at greater length in our next issue. Here may we suggest that as large a number as possible co-operate with the Clinical Section of the Hennepin County Medical Society to assist in the gathering of material for the dry clinic days and to be ready to present their cases or subjects of their discourses to the Program Committee when requested. Then, too, a large number of doctors

will be required to assist at the Health Exposition, and it is hoped that the doctors will come in voluntarily to offer their aid. It means a lot of time and a lot of sacrifice on the part of the medical man, but we should all be willing to do our share in order to make both the Exposition and the Clinic Week a great success.

To date we have not been able to announce the names of any distinguished visitors or clinicians, but as soon as this information is in our possession a letter will be sent out notifying the profession of whatever is new on the program.

But, we repeat, as before, that we expect to have the biggest clinic this year that has ever been held in Minneapolis. Its reputation has been made and we must keep it up.

## CORRESPONDENCE

### SCARLET FEVER ANTITOXIN IN NEW YORK

TO THE EDITOR:

Supplementing the communication of Dr. A. R. Dochez, in the *Journal of the American Medical Association* of February 16, 1924, on "The Significance of Streptococcus Hemolyticus in Scarlet Fever," is a letter giving more information on the development of this study resulting in the preparation of a specific antiscarlatinous serum that will be of interest to medical men.

I am filled with enthusiasm over a talk given by Dr. Dochez yesterday in lieu of the customary case reports. Dr. A. R. Dochez is on the medical staff at the Presbyterian Hospital, of New York City. He has been at the Rockefeller Institute for several years prior to coming to the Presbyterian Hospital, and he is responsible for much of the work at that institution on the grouping of pneumococci. Since the influenza epidemic of 1918 he has been studying the streptococcus hemolyticus organism and he has discovered through this work the etiology and cure of scarlet fever. Three weeks ago his years of study culminated when he injected a serum into three desperately sick scarlet fever patients with miraculous results.

I was fascinated by the story as he told it before the staff yesterday morning. It was not so much the wonderful discovery but the man himself that interested me. The life of Pasteur has always seemed wonderful to me, not so much his manifold discoveries as his uncanny

ability to sense the truth from a mass of confusing evidence. That is what fascinated me as I listened to Dr. Dochez's story,—the rare gift of a mind which can pick a pathway through a confusion of tangled and apparently completely disjointed facts.

His discovery grew out of a study of streptococcus hemolyticus, the secondary invaders of the lungs in severe influenza cases. It had been realized for years that the class of bacteria called *streptococcus hemolyticus* was not a single organism. This organism caused many different infections, such as otitis media, arthritis, nephritis, and septicemia. He and other co-workers, among whom was another doctor on the staff of the Presbyterian Hospital by the name of Stevens, perfected a technic for separating the various streptococcus strains. This was done by culturing the strains, injecting them into laboratory animals and obtaining an agglutinin from the animal's serum which would act on the organisms of the same strain.

It had been known for sometime that the streptococcus hemolyticus was present in a large majority of the throats of scarlet fever patients. In fact for a long time the streptococcus hemolyticus was considered a possible cause of scarlet fever. A German by the name of Jochmann turned the tide of scientific belief against this organism as a cause of scarlet fever for two reasons: (1) He thought that one was not justified in believing that a disease so specific as scarlet fever could be caused by an organism so manifold in its disease activities as streptococcus hemolyticus, and (2) he was unable to demonstrate the organism in the throats of all scarlet fever patients, particularly in those having a very rapid and malignant type of the disease.

Imagine the enthusiasm of Dr. Dochez and his co-workers when they found that the agglutination test separated the streptococcus hemolytic organisms found in scarlet fever cases from the other strains of streptococcus. They collected strains from these patients all over the world, not only throat cultures but cultures taken from lochial discharges and from other sources. By this means he proved that both of Jochmann's reasons were wrong. The scarlet fever strain of streptococcus hemolyticus was *specific*, and it could be demonstrated in 100 per cent of the scarlet fever cases.

The next step was an attempt to produce the disease. He tried to do this in a variety of animals without success. Only one animal showed



any signs of infection. This was a white dog, which he inoculated while working at Johns Hopkins. The injection of the dog was followed by a rise in temperature and a general erythema (on the third day, I believe) and in due course of time by a shedding and scaling. He was delighted.

Try as he would he could not get a recurrence of the phenomenon. Here was a barrier he could not pass. He felt sure there must be something about that dog which made it susceptible. But what? He tried a score of white dogs of different breeds; still no result. Most men would have become discouraged. It takes genius to stick to one minute grain of truth. The persistence of Pasteur on his "silly" search, lasting almost two years, for a certain kind of racemic acid teaches us that patience and perseverance, together with the intuition to know the truth when it is seen, are the essentials of a great investigator.

Dr. Dochez finally broke down the barrier. He found that the first white dog which had contracted scarlet fever had been operated on surgically. He had injected his solution of streptococcus hemolyticus into an area in which the lymphatic drainage was impaired. This gave him the clue. He developed a technic of injecting subcutaneously molten agar and injecting the streptococcus hemolyticus into this blocked-off area. After much labor and experimentation he produced a syndrome resembling scarlet fever in guinea-pigs. These animals had a rise of temperature, developed a rash on the second or third day, and desquamated on about the tenth day. Following this success he tried other strains of streptococcus hemolyticus on guinea-pigs treated in the same way and did not get the scarlet fever syndrome.

Dr. Dochez guessed that scarlet fever was probably a toxic condition. The clinical likeness of the disease with diphtheria fixed his attention. In diphtheria also there is a localization of the organism in the throat and a production of a toxin which gives rise to the symptoms of diphtheria. Why, therefore, could not an antitoxin be developed in scarlet fever in the same manner as in diphtheria? Work by other men was on record to show him that the desquamations of scarlet fever patients were usually not infectious. Also certain work has been done by other investigators on 21-day immune human serum. This serum was found to blanch the skin eruption of a scarlet fever patient at the height of the disease for an area of 1 to 4 cm. around

the point of injection. This blanching reaction seemed to represent the interaction between the antitoxin in the immune serum and the toxin causing the rash.

From all these facts Dr. Dochez guessed the truth and attempted to develop a true antitoxin in the usual manner. He injected the neck of a horse with molten agar and put in his streptococcus hemolyticus scarlet fever culture. The poor horse nearly died. Its neck enlarged to double its normal size. After two weeks the process was repeated, and, in two-week intervals, the doses given the animal were increased to enormous quantities. After six months some serum was obtained from the horse containing antitoxin. It was injected into the skin of scarlet fever patients having the rash, and large areas of skin were blanched and *remained blanched throughout the disease*. The developed antitoxin was found to be approximately one hundred times as potent as the 21-day immune serum of the convalescent patient. After much consideration and, I imagine, a cold sweat on the part of Dr. Dochez, the antitoxin was used on an adult critically ill with scarlet fever. The delirium ceased in about two hours and the patient was normal in twenty-four hours. Two children, also severe cases, showed similar results. It surely was a wonderful talk. Do you wonder that I was thrilled?

HALBERT L. DUNN, M.D.

Presbyterian Hospital, New York, City

NOTE.—Interesting confirmation of the curative properties of this serum is given by Drs. Blake, Trask, and Lynch, in the *Jour. of the A. M. A.*, for March 1, 1924, p. 712.

## BOOK NOTICES

**REGIONAL ANESTHESIA: ITS TECHNIC AND CLINICAL APPLICATION.** By Gaston Labat, M.D., Lecturer on Regional Anesthesia at the New York University; Laureate of the Faculty of Sciences, University of Montpellier; Laureate of the Faculty of Medicine, University of Paris; Formerly Special Lecturer on Regional Anesthesia, The Mayo Foundation, University of Minnesota. With a foreword by William J. Mayo, M.D., octavo of 496 pages with 315 original illustrations. Philadelphia and London: W. D. Saunders Company, 1922. Cloth, \$7.00 net.

Not the least interesting feature of this work is a foreword by Dr. Wm. J. Mayo in which the present status of regional anesthesia is outlined according to the lights of this great surgeon. He

makes the following points: that relaxation and exploration are impossible of attainment by the use of regional anesthesia in abdominal surgery; that exaggerated claim for regional anesthesia has retarded its acceptance; that lung complications are as common after regional as after general anesthesia; and that the psychic element is an obstacle to the use of regional anesthesia. He farther suggests that regional anesthesia should have preference in cases of intestinal obstruction and in cases of acute sepsis; that regional anesthesia has a large field of usefulness in the hands of the expert; and that the future will demand that the young surgeon perfect himself in its skillful use.

One wonders at the statement that abdominal relaxation can not be obtained with regional anesthesia. The reviewer feels like suggesting that it might not be unfair to allow the exaggerated claim for the advantages of regional anesthesia to divide honors, so to speak, with the obstinate conservatism which has been manifested by those who have so long made exaggerated claims for general anesthesia. Again, one feels like suggesting that, even though the embolic theory regarding pulmonary complications be accepted, the condition of the lung in which the embolus lodges may have considerable influence upon the developments which follow. The large variation in the types of cases in which regional anesthesia is considered acceptable and the hopeful outlook for the future of the method coming from such a source may well hearten those who have learned by experience the many advantages of regional anesthesia.

In the text, which is very profusely illustrated by excellent drawings, a number of points are stressed. Preference for conduction rather than infiltration anesthesia is maintained. Minute detail is evidenced in relation to the author's equipment and technic of preparing solutions. He also advocates the method which he employed at the Mayo Clinic, of having one individual induce anesthesia and another perform the operation. The author sets the standard of skill required to use the method very high. Direct infiltration is condemned, but cholecystostomy, Cesarean section, and some other conditions permit its use. While greatest consideration is given to the technic of paravertebral anesthesia the author admits that the quantities of solution required and the rate of absorption in this area are great. We find that field block is given preference to paravertebral anesthesia in abdominal operations, that infiltration must frequently supplement an incomplete block, and that massive infiltration is recommended in thyroidectomies and circularly about the extremities. In this regard those who have kept in touch with the author's work will note a marked change of viewpoint since his coming to the United States and a tendency to employ the more simple methods. It is difficult to reconcile the use of infiltration in some operations as noted with the author's express reasons for its avoidance.

The reviewer does not concur in many statements made by the author, such as the great difficulty and long practice required for induction of anesthesia of the abdominal wall; that the introduction of solutions of novocain reduce the vitality of the

tissues, which certainly has been disproven by Crile and Farr; nor with his method of producing secondary wheals.

The author has given little credit to other writers and has conveyed the impression of originality in many cases. For instance, tilting the table laterally, the avoidance of gauze packs and their vicious circle, and the expression "negative intra-abdominal pressure," are surely not new in this locality.

The book repeatedly suggests the work of V. Pouchet and P. Soudat, is well written, and, with its liberal illustrations, should be of value to both the student and the local anesthetist.

—STANLEY R. MAXEIMER, M.D.

#### GENERAL MEDICINE IN THE PRACTICAL MEDICINE SERIES.

By George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, M.D., Bertram W. Sippy, M.D., and Ralph C. Brown, B.S., M.D. Chicago: The Year Book Publishers, 1923. Volume I.

This volume of 678 pages collects reports and edits the accepted progressive and recent work of men in general medicine. The etiology, pathology, course, diagnosis, and treatment of diseases are well presented.

The more recent advances and the newer tests, such as Widal's test of liver function, are discussed and applied.

The more prominent items are given full recognition, as in the chapters on heart diseases. This topic covers eighty-eight pages.

The parallel but differing views on a given subject are faithfully given and finally evaluated when possible.

The very frequent and varied errata in the text are notable and, in some cases, misleading.

The excellences of the printer's task are many. The medical man will find great profit in the book.

—GEO D. HAGGARD, M.D.

THE EXAMINATION OF PATIENTS. By Nellis B. Foster, M.D., Associate Physician to the New York Hospital; Associate Professor of Medicine at Cornell University, College of Medicine. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1923. Cloth \$3.50 net.

This volume attempts to give a brief and comprehensive outline of various methods of diagnosis in current use. As such, it follows a different avenue of approach from the standard text-books upon the subject of physical diagnosis, and includes a great deal of material which is not ordinarily found in such volumes, although the space given to purely physical diagnostic methods is somewhat limited.

The methods of securing an adequate clinical history are given briefly. The examination of the head, thorax, cardiovascular system, pulmonary system, abdomen, and extremities are discussed comprehensively and with especial reference to points with which the medical student is liable to have difficulty.

The section upon diseases of the cardiovascular system includes, in addition to the usual physical findings, an interpretation of the value of tele-röntgenograms as a measure of cardiac hypertrophy, and a discussion of the renal function tests and



their relative value. The examination of the eye-grounds is also discussed.

Diseases of the digestive system are discussed with some detail, with particular reference to x-ray and laboratory aids in diagnosis.

The Lyon-Meltzer technic is given perhaps more importance than it deserves.

Genito-urinary and pelvic examinations are covered briefly.

A large amount of space is devoted to neurological examination, including the common methods of neurological diagnoses.

Examination of the extremities is presented very briefly.

It would seem that the relative amounts of space allotted these sections might be altered to good advantage. Immunological tests are explained with helpful illustrations. The illustrations used throughout are well chosen. Important points are illustrated by brief case records.

In all it may be said that this book presents a great number of useful and practical points in diagnosis from a new and valuable standpoint and should be of value to the medical man and student.

—JOSEPH H. TAYLOR, M.D.

## NEWS ITEMS

Dr. W. F. Baillie has moved from Hunter, N. D., to Fargo, N. D.

Dr. C. A. Durkee has moved from Fairmount, N. D., to Lidgerwood, N. D.

Dr. F. A. Dunsmoor, of Minneapolis, has returned from an extended vacation in Florida.

Dr. D. W. Kohler was elected mayor of St. Joseph, a village of Stearns County, last month.

Dr. J. H. Rishmiller, of Minneapolis, has returned from a month's rest at Boca Grande, Florida.

Dr. H. L. Staples, of Minneapolis, has returned home from a few weeks' vacation in San Diego, Calif.

Dr. M. Russell Wilcox, of Minneapolis, has returned from Hollywood, Calif., where he spent most of the winter.

Dr. O. N. Meland, of Warren, has returned from Europe, where he recently went on his honeymoon and to visit the clinics.

Drs. J. Frank Corbett and O. S. Wyatt, of Minneapolis, have changed their offices from the P. & S. Building to the Yeates Building.

Tribute was paid to the memory of Dr. A. B. Ancker at a meeting in the Ancker Hospital,

St. Paul, last month. Mayor Hodgson made the principal address.

The Free Dispensary of the Minneapolis General Hospital (the City Hospital) treated 64,293 patients in 1923, which was an increase of 21,000 patients in two years.

Dr. C. M. Oberg, of Minneapolis, has gone to Europe. After some weeks of travel with his wife and daughter, he will spend a couple of months in the Vienna clinics.

Dr. Donald K. Woods, after practicing medicine for ten years in Great Falls, Montana, has moved to San Diego, Calif., where he will confine his practice to children's diseases.

The North Dakota State Nurses' Association recently hung a portrait of the Association's first president, Miss Bertha Erdman, in the State Capitol. Miss Erdman died about a year ago.

At the annual meeting of the Deer Lodge County Medical Society, held last month at Anaconda, Mont., officers were elected as follows: President, Dr. Oliver Leiser; secretary, Dr. R. C. Hall.

A committee of citizens of Brainerd has undertaken to reorganize the Northwestern Hospital of that city and to raise funds to carry it on. The church of Brainerd and vicinity will lend their aid.

Dr. W. F. Cantwell, who has practiced for the past three years at Littlefork, has located at International Falls. He has just returned from four months of special work in New York and Boston hospitals.

The seventh annual meeting of Minneapolis Clinic Week (May 6, 7, 8, and 9) will surpass in interest and profit all preceding meetings; and the attendance, it is quite certain, will be double that of any preceding meeting.

At the annual meeting of the Minneapolis Surgical Society, held last month, the following officers were elected: President, Dr. A. E. Wilcox; vice-president, Dr. A. A. Zierold; secretary, Dr. W. D. White; councilor, Dr. M. J. Lynch.

St. Barnabas Hospital and The Sheltering Arms (a children's home), both of Minneapolis, will each receive \$450,000 from the estate of a deceased Canadian lumberman, Mr. Edwin C. Whitney, a former donor of considerable sums to them.

The attempt to prevent the publication of *Radiology*, the Journal of the Radiological Society of America, from St. Paul, by its former publisher, Dr. A. F. Tyler, of Omaha, Neb., has failed, and *Radiology* remains in St. Paul, the property of the Society.

Sheyenne Valley Medical Society of North Dakota has organized a credit association to protect its members in the collection of their fees. No man will be denied the services of a physician unless he has failed to arrange for the bills of other physicians.

Dr. John C. Nelson, of St. Paul, died last month at the age of 76. Dr. Nelson graduated from the College of Physicians and Surgeons, of Keokuk, Iowa, in the class of '79, and he had practiced for forty-five years in St. Paul, and was Danish vice-consul for 28 years.

The City of Faribault pays a local hospital \$1.00 a day for the care of the City's patients. The hospital authorities assert that the actual cost of such care is \$3.44, and they cite the cost of hospital care in other cities, which ranges from \$2.11 in Lincoln, Neb., to \$5.52 in Cincinnati, Ohio.

Dr. E. A. Meyerding, the Director of Hygiene in the St. Paul public schools, has resigned to become the executive secretary of the Minnesota Public Health Association. Dr. Meyerding has done exceedingly efficient work in the St. Paul schools for several years, and will do equally good work in his larger field.

The Children's Bureau of the Department of Labor of the United States announces that the North Dakota Child Welfare Commission is among the most successful child welfare commissions in the country. Like commissions in Virginia and Minnesota are also commended for their success in this line of work.

Dr. R. G. Pearce, of Akron, Ohio, formerly of the Department of Physiology, Western Reserve Medical School, will deliver the annual Alpha Omega Alpha address on Monday April 14, 1924, at 8 P. M. in the Anatomy Amphitheatre. The subject will be "Work and Respiration." The medical profession is cordially invited to attend.

Dr. Morris Fishbein, associate editor of the *Journal of the American Medical Association*, made three addresses in Minneapolis on March 19, the principal one being on "Medicine and the Press." The three talks were interesting and informing.

Dr. James McAuliffe, of Duluth, died last week at the age of 68. Dr. McAuliffe was a graduate of the Department of Medicine of the University of Buffalo, class of '88. He came to Minnesota soon after graduating, and has been in practice here since that date, most of the time in Duluth. He was at one time coroner of that city.

The Health Exposition to be given under the auspices of the Hennepin County Medical Society on May 5-10 in Minneapolis, has been endorsed by perhaps a hundred organizations, and it will be attended, probably, by over a hundred thousand people. It will spread the doctrine of good health. The exhibits will make a "show" well worth visiting and studying.

Dr. J. W. Andrews, of Mankato, has severed his connection with the Mankato Clinic, of which he was one of the original members. Doctor Andrews will be seventy-five years of age this month, and has been in active practice for forty-six years. Due to his age, he felt the need of a rest, and therefore left the Clinic and spent the winter in Florida. He has just returned from the South and will resume his practice, having an office room with the Mankato Clinic, where he may meet his patients and friends, although being in no way connected with the Clinic.

---

#### Temporary Work Wanted

By a competent physician licensed in Minnesota and North Dakota. Can give the best of references. Ten years experience; available at once. Address 79, care of this office.

#### Fine South Dakota Practice for Sale

Unopposed practice of \$8,000 in town of 600 in rich farming country in Eastern South Dakota. \$2,000 for office outfit and introduction. Address 78, care of this office.

#### Office Position Wanted in Minneapolis or St. Paul

By the widow of a physician. Applicant has a pleasing personality, and has just learned steno-graphy. Will work for a very moderate salary. Address 66, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 LaSalle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Laboratory and X-Ray Technician Wants Afternoon Work in Minneapolis

A high grade expert in the above lines wants afternoon work in Minneapolis. Best of recommendations. Address 74, care of this office.



**Position Wanted By X-Ray Technician**

Who has had charge of the x-ray work of one of the leading hospitals in St. Paul and of a large clinic in Minneapolis. Best of references. Will work in or outside of the Twin Cities. Address 73, care of this office.

**Practice for Sale**

Office equipment and practice for sale at a bargain in one of the best outlying districts of St. Paul, on account of prolonged illness. Everything ready to go to work. A good opportunity for someone. Address 69, care of this office.

**Office Position Wanted**

A thoroughly experienced medical secretary, correspondent, bookkeeper, and stenographer desires a place in a hospital or office in the Twin Cities. Familiar with all medical office detail, and can give the best of references. Address 64, care of this office.

**Wanted, An Assistant Physician**

Preferably a physician with one or two years' experience. An assistant physician with ultimate partnership and the inheritance of a large and old-established practice. Must be especially interested in obstetrics and diseases of women. Address 61, care of this office.

**Late Model X-Ray Transformer for Sale**

Victor Snook X-Ray Transformer, Auto and Resistance Control, complete with Coolidge Transformer and Control. Remote Control, Transformer and Rectifying Device in Cabinet. For 220 volt direct current. Reasonably priced. For further information address 60, care of this office.

**Physician's Residence for Sale in St. Paul**

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

**Minneapolis Offices for Rent**

Very desirable accommodation for a suburban physician wishing special office hours downtown. Choice of several rooms, whole or part time, in a building exclusively for physicians and dentists. Reception room nurse, laboratory technicians, etc., in attendance. Address 67, care of this office, or call at 821 Besse Building.

**Very Desirable Office in Minneapolis for Rent**

An exceedingly desirable location, with a pleasant office with a dentist, is offered at 625 Plymouth Ave., over a drug-store, with a second drug-store nearby and under the same management to direct attention to both physician and dentist. Rent reasonable. Address or telephone Dr. A. A. Love (Dentist). Tel. Hyland 3036.

**Minnesota Practice for Sale**

Will sell my practice as I am taking up special work. The practice is young (yet, but without doing my own surgery I made over \$5,000 last year and collected 94 per cent. Practice ought to run \$7,000 or upwards next year on account of a new railroad being built into the town. Am anxious to close the deal at once. Address 76, care of this office.

**Physician's Office Equipment, Instruments, Etc., For Sale**

Mrs. Christine Lund, of Hutchinson, Minn., offers for sale the complete office equipment of the late Dr. Theo. C. Lund, physician and surgeon, consisting of surgical instruments, scales, safe, desk (McCaskey's system), sterilizer, etc. Equipment in good condition. For information inquire of the Citizen's Bank of Hutchinson, Minn.

**Physician Wanted**

Murdock, Minn., on the Great Northern R'y, wants a physician. The village is situated in a splendid and very prosperous farming section; crop failures unknown; the best of country roads; two banks; large creamery; two churches; a fine consolidated school doing grade and high school work. Physician in demand and work ready for him at once. Address E. C. Kiesling, Murdock.

**Association with a Physician Wanted**

A recent Rush graduate of Norwegian descent, who will complete his senior internship in a large Twin City Charity hospital, July 1, 1924, desires a position with a good future as assistant to a busy practitioner after that date. Personality agreeable; health excellent; and ability at least average. Protestant. Mason. Not afraid of hard work. Prefer position as assistant or an associate, but might also consider a general practice if the opening is favorable. Address 55, care of this office.

**Small Minnesota Hospital for Sale**

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

**Assistantship Wanted**

Assistantship to a good busy surgeon or general practitioner is wanted by a recent Rush graduate. Have had nine months work in emergency industrial surgery while at school and fifteen months of one of best internships.

Can speak Norwegian, and am in very good health, capable, and willing to work hard. Am confident that I can satisfy as to character, personality, and ability.

I desire a position with a good future in a thriving city. Address 77, care of this office.

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 8

MINNEAPOLIS, APRIL 15, 1924

Per Copy, 10c  
A Year, \$2.00

## SOCIAL INSURANCE\*

By ARTHUR N. COLLINS, B.A., M.D., F.A.C.S.

DULUTH, MINNESOTA

I wish to occupy your attention for a few minutes to discuss two or three angles of the subject of social insurance, a subject which has been tugging at the latch-string of the medical profession for recognition in the last few years. I can think of no branch of the medical profession better qualified to ponder this subject with intimate understanding than a group of railroad or industrial surgeons; and I can think of no group which should be more vitally interested in a proper solution of this modern problem—that of provision for unexpected illness or accident among the laboring or less affluent classes. Who shall provide for them? How shall the provision be accomplished and how much should be done? These are the questions which have furnished material for debate, and, so far, these questions have been only partially answered.

The injured person is interested, primarily, in a means of proper compensation for a disability which prevents his earning his customary livelihood. The medical profession is interested in a means of proper compensation for medical and surgical attention to the sick or injured person. Both are interested in such compensation to avoid pauperism. The interests of the injured and of the physician are inseparable, either in the existing compensation laws with which we have daily to deal or in any state of social scheme which may be proposed or built up to replace these laws. In other words the two essentials

of any sick-insurance scheme are financial aid and medical aid.

### FINANCIAL AID

For centuries before the modern compensation legislation with which we are at present dealing, the law had treated contracts of employment as purely personal agreements, the interest of the public in them being overlooked. Controversies arising out of them had been disposed of by the courts with an eye chiefly to assessing or gouging the party at fault for the benefit of the party injured. Certain doctrines were gradually evolved and persisted for long. These were known as follows:

1. The contributory negligence rule.
2. The fellow-servant rule.
3. The doctrine of assumption of risk.

These laws were uncertain and unsatisfactory and wrought hardships upon employer and employee; and the medical profession was left to take care of itself. So that the attitude of our forefathers towards labor, and more especially towards the problem of industrial accidents, is not the attitude of the rising generation.

In 1887 a German Government Commission showed that out of every 100 serious accidents, 43 were such that no care on the part of the employer could have prevented. In the remainder the injured was thrown "on his own." Hence the support of the disabled laborer and his dependents in 57 per cent of the cases is thrust upon the general community in the form of

\*President's Address, presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



charity. The result is, therefore, more than a social injustice; it reveals an economic fallacy. The medical profession is not the least sufferer in such a situation, as we all know. The need of a remedy for this unjust state of affairs had been felt for many years. Then workmen's compensation laws, after long delay, came "like a whirlwind" upon the United States. If these laws are not perfect, they are at least a better solution of the problem than the old one. To all intents and purposes they have come to stay. In no jurisdiction where workmen's compensation has been adopted has it been abandoned. The courts have shown an increasing readiness to accept the proposed solution of a difficult branch of the labor problem at its own valuation. Compensation awards are, therefore, quite commonly granted to the injured.

#### COMPENSATION AWARDS

Compensation awards are intended to take the place, in some degree, of wages, in an effort to defray the ordinary expenses of the injured workman and his family during the enforced hiatus in his productive activity. The American standard of living undergoes changes from decade to decade, or even in less time than a decade, as one may readily see without statistical proof. In John Mitchell's book, some years ago, he stated that he regarded \$600 an annual necessity for an average family. In 1907 statistics showed the necessity for \$700 to \$875 for the same family. Compare these figures with the requirements of to-day, and the point is clear. It is obvious, under any of these conditions, that these slender incomes fail entirely to cover *one* class of very necessary expenditures,—the medical and surgical treatment, the hospital charges, and the countless incidental calls on the purse, which the injury entails. To the very poor workmen, and families living on minimum, "doctors' bills" come as a crushing blow, and the utter impossibility of paying them out of the pittance reserved for the absolute essentials of every-day life, is manifest. To meet this condition nearly all compensation states have made some provision for medical and surgical aid for an injured employee. Before these laws were enacted the doctor shared in the patient's poverty. He was either poorly paid at best, or not paid at all.

Another important question in the compensation acts is the selection of a physician. Should he be selected by employer, employee, or some other agency? A recent writer has urged, with some eloquence, that the employee should exer-

cise the choice in this matter, since his confidence in his physician may be an important element in hastening his recovery, though this same author conceded that the judicial tendency, in the absence of express provision in the statutes, has been to leave with the employer the discretion in selecting the medical attendant, subject to the limitation of reasonableness. Each plan has disadvantages.

Another factor which enters into the structure of the compensation laws is accident prevention.

#### ACCIDENT PREVENTION

It is true that the theory of workmen's compensation rests on the assumption that the expense of industrial accidents is part of the cost of production. This expense includes his doctor's bill, as well as his hospital or ambulance bill, or any other bills incident to his disability. The very fact of compensation itself, however, is an encouragement to accident prevention. Employers, forced to assume the financial burden of injuries springing from the accidents of industry, are naturally enthusiastic for the elimination of such injuries.

The main desideratum, after all, is so to distribute the economic burden, of work accidents and accident prevention, that it will not fall with crushing weight upon any individual or any social group. In short, therefore, compensation insurance, to be effective, should secure the payment of money benefits and the furnishing of medical relief for work accidents promptly and certainly; should distribute the cost over the community with as little disturbance as may be of existing competitive relationships; stimulate accident prevention; and cost no more than is necessary for the effective performance of its functions.

#### SOCIAL INSURANCE

All insurance is a substitution of social, co-operative provision for individual provision. Technically, this substitution, of social effort for individual effort is known as the theory of distribution of losses and the subsequent elimination of risk.

The social advantages of distribution of losses are equally applicable to all forms of insurance, to commercial insurance as well as to social insurance; but we must remember that the cost of commercial insurance is comparatively high. We have, therefore, this social problem underlying the need of insurance of the wage-earning millions. Their economic condition is precari-

ous; the economic dangers threatening them, many; and the degree of risk in each case is very high. Industrial provision is insufficient, social provision, through distribution of loss, is necessary but costly, Social insurance, when properly developed, is nothing, if not a well-defined effort of the organized state to come to the assistance of the wage-earner, and furnish him something he, individually, is quite unable to obtain for himself.

I have endeavored, in the above short résumé, to state as briefly as possible what seems to be a fairly close definition of social insurance, as I understand it from the writings of its proponents, who have accumulated large masses of statistics on the need of social insurance in the United States, upon industrial accidents, on the causes of industrial accidents, on the indictment of employer's liability, American compensation legislation, etc. But I shall not weary you with any of these. You may read them if you choose to study more deeply into this subject.

#### MEDICAL AID

It has come to be well recognized that medical aid is an important essential in the scheme either of workmen's compensation, or of the more socialized one of compulsory sick insurance or social insurance. The deplorable feature, however, from the standpoint of the medical profession is that in the existing laws the profession has been reckoned *upon*, but has not been reckoned *with*. The laws have been framed to include medical aid, and the profession has not been asked by insurance companies what the charges would be, but has been told how much it shall receive. The public is told, by writers on social insurance, that "it is an unmistakable sign of the times that private medical practice is a declining institution, that it is expensive, wasteful, and inefficient, and that it gradually must give way to organized medical services." But we find that in Germany the prices became so low that "physicians' strikes" became a common occurrence. For after all a physician must live. We find that the British medical profession profited by the experience of the German profession and stood strongly against reduced remuneration for their service. And we have yet to hear the voice of general approval from the British medical profession in favor of their system of organized medical service. Upon the contrary, we hear in this country much against it. In spite of this, however, there are experiments going forward in France, Italy, Russia, Switzerland, Austria, and other countries,

and in certain parts of this country, notably California, Ohio, Oregon, Nevada, Washington, West Virginia, and Wyoming, along the lines of this socialized form of insurance. There are tendencies of this sort observable in the United States in the growing prevalence of sick benefits among trade unions, railroad relief funds, in certain state legislation, and in the American fraternal orders. The latter have a membership of upwards of 8,000,000, and, therefore, enter into the life of 25 per cent or 30 per cent of all our families. It is said that the wage-workers must learn to see that they have a right to force at least part of the cost and waste of sickness back upon the industry or upon society at large, and the argument is used that they can do it only when they demand that the state use its power and authority to help them, indirectly at least, with as much vigor as it has to come to the assistance of the business interests,—manufacture, agriculture, commerce, and transportation.

I need not tell you that this matter has been before the medical profession of this country for several years, nor that it is still clamoring for a share of the attention of the profession. So far as I have been able to see, however, the subject of social insurance in this country is notable more for its enemies among the medical profession than for its friends. This condition is not altogether unexplainable, for the traditions of practice of the mass of the profession are so well established and the professional mind is so slow to adopt revolutionary methods, that we are rebellious at any suggestion which tends to change our status in the social scheme. Moreover, we are mindful of the fact that the present state of public enlightenment upon health matters is a product of the laborious efforts of the medical profession. We are mindful of the fact that in a sense we have assisted legislation to impoverish ourselves. We are not regretful of what we have done to further the reduction or prevention of smallpox, typhoid, tuberculosis, diphtheria, ophthalmia neonatorum, and a score of other diseases which have been the scourge of mankind for generations. Nor are we parsimonious as we realize that in reducing the incidence of these diseases, through public health measures, public school inspection, etc., we have also reduced to a greater or less degree the etiologic or causative factors of acute articular rheumatism, endocarditis, chorea, gall-bladder infections, pyogenic kidney infections, surgical tubercular conditions, infant cholera, and other conditions, both medical and surgical.



In the face of these accomplishments in the interest of physical betterment and increased public health, we are cognizant of the shortcomings and injustices in the various state compensation acts in the treatment of physicians who furnish the medical aid to the injured coming under the compensation acts. The acts seem to be adjusted to the advantage and benefit of the insurance companies and with injustice to the physician. The insurance company, for instance, in reckoning by averages and in large numbers, establishes an average fee for a fracture of the thigh. There are few cases of this average type; therefore the physician who has an occasional simple fracture of the thigh is often overpaid, and the one who practices where there is a great deal of heavy industry has the more severe cases to deal with and is underpaid for them. There are few, if any, surgeons who have so many fractured thighs that their average makes them justly paid under this method. As Dr. Alexander Lambert suggests, the paying of all compensation in injuries by averages in large numbers is all right for the insurance company, but it is very unsatisfactory and often unjust to the individual surgeon.

Most of the laws, besides, cut out the just compensation to the most severely injured because probably three-quarters of all injuries are recovered from in the specified two or three weeks, during which the medical care and compensation lasts. The result is that the surgeons resent being treated in this way, and justly so, and many of them will not bother with taking care of these cases, if they can possibly avoid it, in many districts. Thus the law defeats itself because the best surgical or medical care spells in general a shorter period of disability.

How should the medical profession react to this situation? One lay writer along the line of compulsory state insurance concludes his article by stating that of one proposition he is firmly convinced, despite some indications to the contrary, that the American states, sooner or later, will be driven, or persuaded, to adopt compulsory state insurance laws as the only satisfactory solution of the problem of compensation to injured workingmen.

Another writer on compulsory sick-insurance regards it as exceedingly significant that the difficulties between physicians and the government have moved the latter to a threat of establishing a national, or socialized, system of medicine with paid medical officers if no compromise can be reached.

While these writers on political economy are urging upon the public, through the press, these ideas and arguments in favor of compulsory social insurance, the medical profession persists in the arguments that these changes are not needed, or passes resolutions declaring its opposition to any plan embodying the system of compulsory insurance regulated by state or federal government. It should be remembered that the medical profession has a very small part in the making of the laws of this land. The medical profession had very little to do with framing the present compensation enactments, as is evident by the prevalent disapproval of them from the physician's standpoint. It is undoubtedly true that the physician is better paid under the present regime than under the old one, but the system is still very imperfect. Moreover, there is still much room for better medical service within the reach of a greater number of the people who need it and are not receiving it because they cannot afford it.

The medical profession resents the determination of the socially minded group of people who see the inadequate medical situation with regard to the care given the mass of the people and who are determined to remedy it. The medical profession is apparently refusing to meet them even half-way in their efforts to solve this problem. In this the medical profession places itself on the weak side in the sympathy of the public. Is the medical profession, injured perhaps by unfair treatment in the compensation acts, or with incomes curtailed because of endeavors along the lines of public health and preventive medicine, resisting improved medical service to the masses purely on selfish grounds of diminished income? Does the medical profession hope to improve its status merely by continued opposition?

It is a habit of the medical mind to study detail. When a medical problem presents itself facts are first sought. Principles of action are then developed. Theories should have some foundation in fact. The danger in this situation to the medical profession lies in an unwillingness to study it. Stubborn resistance will not avail in the public mind. Is private medical practice a declining institution? Is it expensive? Is it wasteful and inefficient? Is organized medical service the better or best solution of the problem of better medical service to all concerned?

These and kindred questions should be studied closely, not alone by a single committee of the American Medical Association, but by each state

and county organization. These and every other medical or surgical society should have committees to study the general and the local conditions surrounding this large problem. The subject should be regarded from every angle. Through systematic study in this way a large bulk of facts may be obtained, which later may be co-ordinated into an outline applicable to the country as a whole. Such an outline would furnish a working basis, from which valuable conclusions might be evolved and from which right and just decisions may be made.

I bring this matter to your attention in no mean or bickering spirit, but rather to stimulate a desire to seek calmly a rational solution for this problem. The demands upon the medical profession have grown by leaps and bounds in the last quarter of a century. Previously the practice of medicine was undoubtedly an individualistic proposition. In the past it included, and still in the present it includes, a large proportion of philanthropy. However, in the present we are called upon to adjust our professional lives in keeping with the advances in public affairs. "All the sciences are linked together and must advance in concert." Shall we measure up

to this situation or shall we stand aside and let others adjust it for us? The issue is squarely up to us. After all, the history of medicine includes the history of the men who have made it, and we are the present incumbents. In the words of Garrison, "It is recognized that the whole of medical science includes its parts; that it is greater than its practice, and that it applies to the ills of society, as well as to human ailments."

## BIBLIOGRAPHY

- Van Doren, D. H.: *Workmen's Compensation*. 1918, Moffat, Yard & Co., New York.  
 Rubinow, I. M.: *Social Insurance*. 1916, Henry Holt & co., New York.  
 Editorial in the *Jour. of the A. M. A.*, May 1921, vol. 76, p. 1313.  
 Gardner, J. A.: *Jour. of the A. M. A.*, August, 1922, vol. 79, p. 513.  
 Downey, E. H.: *Jour. Political Economy*, vol 24, pp. 951-984, 1916.  
 Lambert, Alexander: Personal communication. August, 1922.  
 Judicial Council of the A. M. A., *Workmen's Compensation Laws*, 1915 (pamphlet).  
 Committee Report of the A. M. A., *Social Insurance*, 1917 (pamphlet).  
 Committee Report of the A. M. A., *Social Insurance*, 1919 (pamphlet).  
 Lambert, A.: *The Nation's Health*, December, 1921, vol. iii, No. 12. *Attitude of the Physicians to the Health Center*.  
 Hookstadt, Carl: U. S. Department of Labor, Bureau Statistics, No. 301, April, 1922.  
 Green, F. R.: *Social Responsibilities of Modern Medicine*, *Jour. of the A. M. A.*, vol. 76, No. 32, p. 1477, May, 1921.  
 Garrison: *History of Medicine*.

## THE COMMONER DEFORMITIES FOLLOWING FRACTURES\*

By MELVIN S. HENDERSON, M.D.

Section on Orthopedic Surgery, Mayo Clinic

ROCHESTER, MINNESOTA

A certain percentage of fractures leave in their wake residual deformities with consequent disability; fractures close to the joints, or extending into them, are the chief cause of the disabling deformities. In the upper extremity, a considerable degree of deformity is compatible with excellent function, for here the problem of weight-bearing does not enter in.

Fractures of the shaft of the clavicle seldom cause serious deformity, for even with marked over-riding, function is good. Dislocations of the acromioclavicular joint, or the clavicular-sternal joint with subsequent laxity, may cause considerable disability, manifested chiefly by a feeling of insecurity, weakness, and pain on use. Time often greatly lessens this disability, but in certain obstinate cases surgical treatment is necessary. The problem is to give strength to the torn and stretched ligaments. This is best

done by using a living suture of fascia lata taken from the patient's thigh, passing it through holes bored in the bones, and tying it securely. Metal, such as wire, nails, screws, and so forth, should never be used.

Following a fracture of the shoulder joint (for example, anatomic or surgical neck of the humerus) the movements may be restricted, particularly those of abduction and external rotation, but, luckily, the play of the scapula on the trunk compensates for this to a certain extent. If, during treatment, the arm were held in abduction and external rotation, the greater part of the limitation of movement would be prevented. If conservative measures fail satisfactorily to reduce a shoulder fracture so that good function will result, then reduction should be accomplished by the open method.

It is to be remembered that considerable malformation may be evidenced in the röntgenogram in fractures of the shoulders, yet the function

\*Presented before the Great Northern Railway Surgeons, St. Paul, Minnesota, November 20, 1923.



may be quite good. A persistently stiff shoulder may require breaking up of the adhesions under ether after the fracture is thoroughly united. The deformity must be extreme to demand osteotomy.

Fractures of the shaft of the humerus rarely cause deformity of any consequence, but fractures of the lower end of the humerus, commonly called fractures of the elbow joint, often lead to permanent disability. The common residual deformity is lack of flexion, or of extension, or of both, and loss of the carrying angle seen at the time of the injury is displacement of the lower fragment posteriorly, and the upper fragment an-

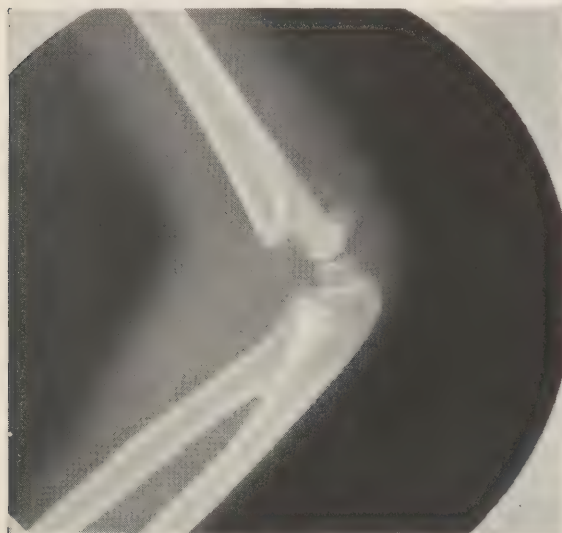


Fig. 1 (Case A256705). Fracture of the lower end of the humerus.

teriorly (Fig. 1). Reduction should be accomplished early and the arm put up in acute flexion, but occasionally the swelling becomes so great that this position cannot be held, and on dropping the forearm down from the acutely flexed position, the lower fragment slips posteriorly and the deformity recurs. In such cases it may be best to open posteriorly and fix the fragment by the aid of beef-bone screws or something of this nature, when the acutely flexed position is not so imperative. When the deformity has been present any length of time and the callus on the anterior surface blocks flexion, operative interference should be made only after the callus is fully matured, certainly not under six to eight months following the fracture. Removal of a "green" callus is of no use. Even after a careful exposure of this exuberant old callus by an anterior approach, and removal of as much of it as can be obtained, the result is often most dis-

appointing. Judgment should be withheld, however, for often after a year's use considerable improvement will be noted. All in all, the operative treatment of this deformity of the elbow is not very successful, and often it is best that the restricted motion be accepted as a permanent disability.

Although a green callus in a situation of this kind is a foe, rather than a friend, there are times when it may be taken advantage of. If the patient presents himself with a malunion of a fracture, in, for example, the shaft of the femur, tibia, or humerus, and the union is not yet thoroughly solidified, the callus having not yet begun to shrink, it is possible to restore a normal line by merely pushing over the fragments into better position, moulding them, as it were. By maintaining this position with a cast or splints, union will occur in the position elected.

When the head of the radius is fractured or dislocated, it may be difficult to maintain it in proper position after reduction, and in such cases immediate excision may be advisable. If the head of the radius is excised a few months after injury, the results may be disappointing, for not infrequently callus develops after the operation and persists permanently in varying amounts. When, however, the operation is performed a year or more after the accident, when all callus-forming properties have disappeared, and what callus there was is thoroughly shrunken, results are much better. Stated briefly, excisions in the early and late stages are satisfactory, but intermediate excisions are not. In young children the operation should be undertaken with hesitation, on account of interference with growth.

Occasionally fractures of the olecranon process fail to unite. The disability is often not as great as one would suppose, but open operation with freshening of the surfaces and a bone graft will restore function.

Fractures of the shaft of the radius and ulna, when situated directly opposite each other, may form malunion or cause a synostosis. If the fracture is above the insertion of the pronator radii teres, it is customary to place the forearm in full supination, but, if this is incompatible with good position of the fragments, a position should be used which will be best adapted to the fragments and the necessary separation of radius and ulna. Full supination encourages wider separation of the bones and prevents their union, but, if this position throws the fragments of one or both knees out of line, it should not be insisted on.

In the wrist joint, Colles' fracture is the most common. As a rule, good reduction is secured, and very little deformity results. Occasionally a patient has considerable residual deformity, but function is generally good. Osteotomy, with a view of correcting the deformity, causes only greater trauma with adhesions, and is seldom advisable.

The scaphoid bone is occasionally fractured, and although the residual deformity is slight, there is pain and inability fully to extend the wrist, and the disability may be great. If such fractures were treated at once by a cockup splint, excellent function would usually result. In chronic cases, if the fracture is old and function seriously impaired, excision of the scaphoid bone is advisable. The results of late excision are generally quite good.

Occasionally the semilunar bone is dislocated ventrally, and often it can be reduced, but in the chronic cases in which reduction has not been accomplished and the bone has been out for a considerable time, excision should be carried out. Clinically, the wrist is considerably thickened. Rather often in these cases, neuritis, due to irritation of the median nerve, is present, and there is also inability fully to flex the fingers on the palm, the bone acting as a bridge over which the tendons are stretched as the strings of a violin are stretched.

Any discussion of fractures of the upper forearm would be incomplete without considering ischemic paralysis, first adequately described by Volkman, and often called *Volkman's paralysis*. It is usually, although not always, caused by the bandages or cast being too tight. I have seen several cases in which no bandage, cast, or splint had been applied. The pathologic condition is a fibrosis, the muscles losing their elasticity and

power of contractility. The deformity (Fig. 2a) is more or less typical, the wrist is flexed, the metacarpal-phalangeal joints hyperextended, and the phalangeal joint flexed. When the fingers are extended the wrist cannot be extended, but when the fingers are held flexed a certain amount of extension at the wrist is permissible. There is a hard board-like feel, particularly to the flexor muscles, and a varying degree of atrophy. The old adage that an ounce of prevention is worth a pound of cure certainly holds good here, for the majority of cases can be definitely attributed to a tight bandage or cast. The damage is done in such a short time, certainly within a few hours, that it is imperative to give heed to pain and disturbance in circulation and immediately to loosen the tight apparatus. Delay is fatal. A hemorrhage into the muscles or within the fascial compartments of the muscles may in itself be sufficient to cause this ischemic paralysis, and in several instances, I feel sure, we have prevented the paralysis by making multiple small incisions through the skin and through the fascia of the muscles, and allowing the blood to ooze slowly out, when the removal of the splints did not restore the circulation and color to the fingers. As I have said, it takes a comparatively short time for the damage to be done; the danger signals are the severe pain, the numb cold fingers, dusky at first, then purplish, and later perhaps white. Opiates should not be given to control the pain following a fracture of the arm until the surgeon is certain that the pain is not the warning of an ischemic paralysis. In several cases we have seen it follow a Sayre dressing for a fractured clavicle. The treatment of the chronic cases is often very discouraging, but by persistent efforts, using



a.



b.

Fig. 2 (Case A407888). Paralysis. a, before treatment; b, three months after treatment was started.



small splints according to the method advised by Sir Robert Jones and his workers, first extending the fingers and holding them on little gutter splints, then gradually extending the wrist in the same manner, better position for function can be secured. The process is long and tedious, and rarely can anything be accomplished under six weeks. In children, however, the results often are very gratifying (Fig. 2b). Operative procedures, such as excision of the bone and so forth, are seldom beneficial.

In the lower extremities the problem of weight-bearing assumes first place in our consideration, and it must be remembered that a degree of deformity which, in the upper extremity, would be compatible with excellent function, in the lower extremity, may cause marked disability.

In the hip joint the all too frequent deformity seen is that of a short leg with eversion of the foot, and inability to bear weight, due to an ununited fracture of the neck of the femur. Here certain procedures such as bone grafting,

otherwise the surgeon should not assume the responsibility of treating the patient. It must be remembered that impaction may be so complete that the patient can walk, and there is no shortening or eversion. Later, with the patient's activity, the impaction; the diagnosis is then made too late.

The position of the fracture must be clearly kept in mind. The fracture is intra-articular through the neck of the femur, with little or no impaction, and there is eversion and shortening of the leg. The eversion is caused by the falling to a lower plane of the trochanter, but the upper fragment to which there are no muscles attached is held securely in the acetabulum. With the patient anesthetized, and by breaking up the impaction and extending the leg to normal length, rotating the foot inward, thus overcoming the eversion and bringing the trochanter and the neck up to its normal level, and then abducting the leg, the lower fragment is brought into firm contact with the upper, and locked there by the abducted position. This position is best maintained properly by a plaster-of-Paris spica cast, advocated by Whitman, running from the chest to the toes, with the leg abducted and the foot inverted.

Fractures through the greater trochanter readily unite, but may leave a certain amount of adduction deformity, although as a rule they permit good function. If, however, the disturbance to weight-bearing is serious, an osteotomy may be performed.

Fractures in the shaft, particularly in the upper third, may result in malunion and have such a poor line for weight-bearing that a severe static arthritis is produced in the hip. Osteotomy may be necessary to correct this condition. The reason that fractures in the upper third of the femur become malunited is because it is very difficult to obtain sufficient traction to overcome the pull of the strong thigh muscles. In the neglected cases, besides the bowing, there is inward rotation of the lower fragment. A Thomas splint with firm fixed traction, obtained by fixed traction to the lower end of the splint, further traction being obtained by lifting the foot of the bed twelve to eighteen inches, and fastening the bottom of the splint to the foot of the bed, offers the best method of obtaining extension.

Supracondylar fractures of the femur may malunite and leave marked deformity. In many instances it would undoubtedly be better at the time of the injury to perform an open operation and obtain correct position. Most certainly

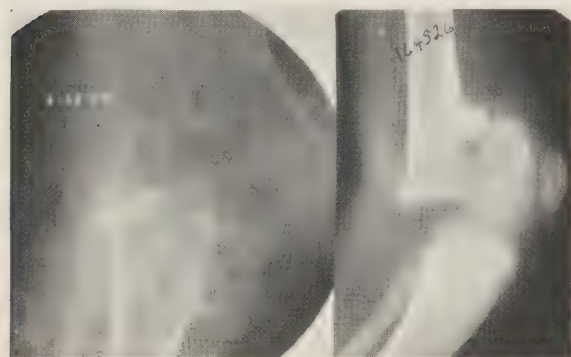


Fig. 3 (Case A417378). Nonunion of hip with fibula as a peg.

Fig. 4 (Case A164526). Epiphyseal separation of the lower end of the femur.

by using a peg from the tibia or the fibula (Fig. 3) or the reconstruction operation of Brackett and Whitman, are the means at hand to restore function. Naturally if the patient is old and feeble, such things are entirely out of the question. The old dictum that nonunion is the rule in fractures of the hip is absurd. Equipped with a sound knowledge of the pathologic condition, and modern treatment, the surgeon should rarely have nonunion develop. In most cases I have seen, the nonunion was due to the fact that a correct diagnosis was not made at the time of the injury, and consequently no treatment was carried out. Too often a diagnosis of sprain is made and the patient encouraged to get about. X-ray examination should be insisted on, unless there are very good reasons for not doing so;

when, at the time of fracture, manipulation under an anesthetic fails to accomplish satisfactory reduction, the patient should have the benefit of modern surgery. It is surprising how great a deformity (over-riding and so forth) may be seen in the röntgenogram, and yet astonishingly little deformity be found on physical examination. This is particularly true of the epiphyseal separations of the lower end of the femur that are occasionally seen in children, and that, in the days previous to the automobile, followed falls from buggies or wagons, the leg being caught between the spokes of the revolving wheel (Fig. 4). Late operations in these malunited fractures are much more difficult than the early ones, and results are not nearly so good.

The intra-articular fractures of the knee joint cause considerable trouble. It is only rarely that they can be improved at all by an open operation even at the time of the injury. Later, if the pain and discomfort are very severe, it may be best to perform an arthrodesis of the knee joint, which will result in a stiff, stable knee. This, however, is only accepted by a few patients, as the majority prefer to maintain what little motion they have ever at the expense of pain.

Occasionally the patella is ununited, and a cause of marked instability. Practically all surgeons are agreed that this is the one fracture that should be operated on at the time of accident or shortly after. If an ununited fracture of the patella has existed for months or years with a separation of, perhaps, 5. or 7.5 cm., it is best to lift out entirely the upper fragment, clean it of the fibrous tissue on the line of fracture, and clean the lower fragment similarly without, however, removing it from its bed, and bring the two together, holding them by the aid of one or two bone screws. Excellent function has resulted in these cases.

Of all the fractures in the lower extremity Pott's fracture of the ankle stands out pre-eminently as leaving in its wake disability. There is a difference of opinion as to the exact interpretation of Pott's fracture. It must be remembered that Pott described his fracture before the day of the *x*-ray. For our purposes we will consider that it is a fracture in the lower 7 or 8 cm. of the fibula with a fracture of the internal malleolus or a tear of the internal lateral ligament, and there may also be posterior displacement of the astragalus. While it is true that occasionally deformity follows too early weight-bearing, I am convinced that if the fracture is properly reduced at the time of the original injury, residual de-

formities would be rare. In the reduction of

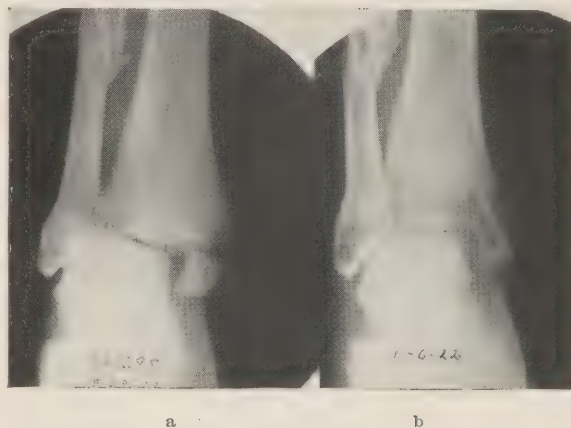


Fig. 5 (Case A403295). Pott's fracture. a, before correction; b, after correction.

the fracture (Fig. 5) care should be taken to see that the concave surface of the upper portion of the astragalus fits into the convexity of the articulating surface of the tibia. This is possible only when the lateral deformity and also the posterior, if there is any, are corrected. The common residual deformity is a valgus position of the foot, and if of considerable degree in a heavy patient, may be very disabling. It can be corrected by an osteotomy of the lower end of the fibula and the internal malleolus, and the foot forced over into the proper position, so that the concave surface of the astragalus fits correctly the convexity of the tibia. When the astragalus has been driven up between the tibia and fibula, and that portion of the articulating surface of the tibia damaged, the results will not be as satisfactory, but the improvement gained in the line for weight-bearing is well worth while. Fractures of the astragalus usually occur through the neck, and, if accompanied by much displacement and left uncorrected, cause trouble. If the head has been dislocated and out for some time, excision is the only treatment. Quite often fractures of the astragalus are associated with fractures of the os calcis, and assume secondary importance.

Patients with fractures of the os calcis often come to us many months after the original injury. The fracture runs through the body of the os calcis, and little can be done. These patients have a permanent disability, and surgery offers them very little.

In fractures of metatarsals, providing the arch of the foot is maintained, it is rare to see a residual deformity of any consequence; the fractures unite readily, and mal-position of a considerable



degree need not cause worry. When there is associated, however, marked crushing and trauma of the soft tissues, it is often best to obtain fixed traction by aid of a banjo splint, or similar apparatus, and maintain during the healing process the normal contour of the foot.

As a matter of fact, in fractures involving the bones of the foot, that is the astragalus, os calcis, metatarsals, and the tarsals, if there has been

crushing of the bone substance, operations are rarely of any use. It is better to put the foot in the best position possible and hold it by the aid of a plaster-of-Paris cast or a splint, trusting to the natural resourcefulness of the structures of the foot, bony and otherwise, to accommodate themselves to the altered conditions and to give good function.

## THE CLINICAL LABORATORY: X. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL, MINNESOTA

### THE ORIGIN OF VARIOUS ABNORMAL CYTOLOGICAL FORMS IN BLOOD

The key to the proper interpretation of the presence of abnormal cells, depends upon a clear understanding of the origin of the various blood cellular elements. Results obtained in hematological research, and in experimental embryology, show the following genealogical relationship between the various types of blood cells:

Up until the fifth month of gestation, only one form of blood corpuscle is thought to exist in the circulation of the fetus, namely, the *lymphoidocyte*. After the fifth month, other forms which mark their development from the original primitive cell, the lymphoidocyte, begin to make their appearance.

#### *Red Blood Cells:*

From the lymphoidocyte are developed the megaloblast and normoblast (nucleated red cells) to which are traced the normal non-nucleated red cells. These are produced in the red bone marrow, liver, and spleen.

#### *White Blood Cells:*

From the original lymphoidocyte or primitive cell, two types of white blood cells are developed. First, those of bone marrow origin; and, second, those of lymphadenoid origin.

#### *Bone Marrow Origin:*

The myeloblast or original bone marrow cell is the forerunner of the myelocyte. The neutrophilic myelocyte develops into the neutrophilic or common polymorphonuclear leucocyte; the eosinophilic myelocyte into the common eosinophile; the basophilic myelocyte into the so-called "Mast" cell or basophile.

From the original myeloblast there develops the original mononuclear leucocyte, which is

thought to be the forerunner of the transitional form. Turck's irritation form, which is rarely observed, is also developed from the original myeloblast.

#### *Lymphatic Tissue Origin:*

From the original lymphocyte of lymphadenoid origin, are developed the large lymphocyte and the adult common small lymphocyte.

With these fundamental points in mind, it can readily be understood that in certain pathological conditions such, for instance, as severe anemia, the presence of nucleated red cells or myelocytes and other immature forms, is an expression of blood depletion. Furthermore, the presence of such forms shows that the various blood-forming organs of the body are engaged in an effort to supply to the blood, cellular constituents to replace those elements which have become exhausted and have disappeared.

#### *Myelocytes:*

Myelocytes are seldom found in normal blood. They are present in the bone marrow and are found in the blood, usually only in pathological conditions. These cells are relatively large and contain a faintly stained nucleus, surrounded by slightly stained protoplasm, containing granules, which may be basophilic, neutrophilic, or acidophilic. These cells represent stages in the development of the polynuclear leucocyte, and their presence in the blood stream indicates an attempt to draw upon the bone marrow for new leucocytes.

Myelocytes are found accompanying leucocytosis and during the process of an infectious disease. Thus they may be found in the blood in severe cases of diphtheria, during septic infections, in variola, and in pneumonia. The myelocytes usually found in the above conditions are neutrophilic. They are also present in perni-

\*This is the tenth of a series of articles by Dr. King on the Clinical Laboratory.

cious anemia and in acute lymphatic leukemia. Eosinophilic myelocytes are met with in the blood of advanced cases of leukemia and in cases of tumor of the bone marrow; also to some extent in rachitis and osteomyelitis. Basophilic myelocytes are found in severe myelogenous leukemia.

#### *Myeloblasts:*

These are similar to myelocytes, except that they do not contain the coarse granules. They represent the cells from the bone marrow from which the granular myelocytes are formed. They are, therefore, found in circulating blood only under abnormal conditions.

#### *Turck's Irritation Forms:*

These cells though rarely observed, are found under the same conditions as myelocytes, especially in severe infectious processes, in myelogenous leukemia and in severe cases of anemia. They resemble somewhat the large nucleated red cell.

#### *Lymphoblasts:*

Cells of lymphatic tissue origin, which are similar to lymphocytes, except that they are larger, are sometimes designated as *lymphoblasts*. They are sometimes found in the blood of children and in cases of acute lymphatic leukemia, in Basedow's disease, and in some infectious processes.

#### *Basket Cells:*

These are merely degenerated leucocytes, in which the morphological elements have disappeared and nothing remains but a meshwork of nuclear material. The so-called "basket cells" are found sometimes in the leukemias and the severe anemias.

#### *The Normal Differential Count:*

The total number of leucocytes may vary between 5,000 and 10,000. The average normal percentage for each of the types of leucocytes is as follows:

Polymorphonuclears .....	62 per cent to 70 per cent
Small lymphocytes.....	20 per cent to 26 per cent
Large lymphocytes.....	5 per cent to 9 per cent
Large mononuclears.....	1 per cent to 2 per cent
Transitional forms.....	1 per cent to 5 per cent
Eosinophiles .....	1 per cent to 3 per cent
Basophiles .....	0.2 per cent to 1 per cent

In making a study of a given blood smear, the examiner should keep in mind the following questions: *Red Cells*; Are they normal in size and in staining reaction and in contour? Is there evidence of anisocytosis, poikilocytosis, polychromatophilia and are there nucleated erythrocytes? *White Cells*; Does the differential

count represent the normal limit of each particular type of leucocytes? Are there evidences of degenerated leucocytes, myelocytes, Turck's irritation forms, or basket cells? *Blood Platelets*; Are they apparently normal in number and in staining reaction? *Parasites or foreign bodies*; Is there any evidence of the presence of parasites, such as malaria?

#### *The Blood Picture:*

In the course of general practice many cases are encountered which call for a complete blood examination. Under these conditions it is necessary to examine the fresh blood for the red and white counts, in addition to the preparation of a stained smear of blood. Much more frequently a very practical procedure consists of the collection of a few slides or smears from a given case and a careful differential count and microscopical examination. This simple, practical procedure is not utilized as frequently as it should be in general practice.

#### DISEASES OTHER THAN THOSE OF THE BLOOD, IN WHICH ABNORMAL FINDINGS ARE PRESENT WHICH MAY BE USED AS AIDS IN DIAGNOSIS

##### *Specific or Infectious Diseases:*

*Scarlet Fever*: leucocytosis at its height when rash appears; eosinophilia, during eruptive stage; lymphocytes, decreased until after improvement begins.

*Erysipelas*: leucocytosis present, eosinophiles diminished.

*Smallpox*: leucocytosis.

*Mumps*: leucocytosis.

*Meningitis*: leucocytosis.

*Diphtheria*: leucocytosis, eosinophiles diminished.

*Tuberculosis with sepsis, abscesses, suppurative wound infections, furunculosis, and infection by streptococci, staphylococci, meningococci, pneumococci and B. coli communis*: leucocytosis.

It may be stated that *protection* or *resistance* of the patient is expressed by *total increase of leucocytes*, while *severity of infection* or *virulence* is indicated by *relative increase of the polynuclear or neutrophilic leucocytes*.

According to Cabot and others, prognostic indications are as follows:

1. Early and persistent leucocytosis, with marked relative increase of polymorphonuclear, indicates good resistance and severe infection.
2. Negligible leucocytosis, slight resistance and slight infection.
3. No increase in leucocytes, but relative in-



crease in polymorphonuclears; fulminating or sudden, severe infections.

4. No leucocytosis; good resistance and slight infections.

In the diagnosis of *appendicitis*, the following observations have been made:

1. Walled off or slight infection; moderate increase of whites, polymorphonuclears less than 75 per cent.

2. Acute condition, immediate operation advisable; leucocytosis, polymorphonuclears 80 to 90 per cent.

3. Probable rupture of pus sac and peritonitis; leucocytosis, polymorphonuclears above 90 per cent.

4. Grave prognosis; leucocytosis absent, polymorphonuclears above 90 per cent.

*Pertussis*: lymphocytosis, sometimes preceded by leucocytosis.

*Congenital Syphilis*: lymphocytosis, combined with leukopenia.

*Epidemic Influenza*: lymphocytosis, combined with leukopenia.

*Measles*: leukopenia, early in the course of the disease.

*German Measles*: leukopenia and some degree of lymphocytosis.

*Chicken Pox*: leukopenia and lymphocytosis.

*Typhoid Fever*: leukopenia, lymphocytosis.

*Gonorrhea* (posterior urethra) eosinophilia.

*Pneumonia*: leucocytosis, (if absent of doubtful prognosis) eosinophiles, normal or absent. At time of crisis, leucocyte count normal.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of March 12, 1924

DR. A. S. HAMILTON, Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 12, 1924, at 8 P. M. The meeting was called to order by the President, Dr. Hamilton. There were 34 members and 3 visitors present.

The minutes of the February meeting were read and approved.

Dr. S. E. Sweitzer was elected to membership in the Academy.

The following members reported cases:

Dr. E. M. Hammes (St. Paul) reported three cases.

CASE 1.—Male, aged 19, single, seen in consultation with Dr. Knox Bacon, November 1, 1923.

Family and personal history were negative. Present complaint began about October 10, 1923, with frontal headache. A few days later the patient became nauseated with occasional expulsive vomiting.

About November 1 the family noticed that he had some difficulty in finding correct words while carrying on a conversation. At the same time he complained of vertigo on standing and of some impaired vision. In the course of a conversation he would stop abruptly in the middle of a sentence and forget to finish it. After being kept in bed for a week he seemed brighter, and his headache was not as intense. He had an occasional degree of temperature, pulse, 80. Neurological examination at this time was negative except that he had bilateral choked discs, a slightly positive Romberg, and some mental confusion. His reflexes were normal. All laboratory findings, including spinal fluid ex-

amination, were negative except for a leucocytosis of 12,000.

I saw him again in consultation with Dr. Hoffman on November 15. His condition was about the same but it was found that his choked discs were more pronounced; that he had right homonymous hemianopsia; some ataxia of the left arm; increased right knee-jerk; absent left abdominal reflexes; slight tenderness in the occipital region. X-ray of skull was negative. A diagnosis of left occipital lobe tumor was made. He went to Philadelphia and rapidly grew worse. Dr. Frazier suspected a possible occipital abscess and introduced a trocar into the occipital lobe, with negative findings. A bone-flap operation over the left occipital area revealed no definite pathology, but Dr. Frazier thought that he probably had an infiltrating glioma of the left occipital lobe. He died three days later. No post mortem was permitted.

✓ CASE 2.—Female, aged 21, single, seen in consultation with Dr. A. Conley, of Cannon Falls, Minn., June 24, 1923.

Family and personal history, negative. Patient states that during April, 1923, she developed headaches of short duration which gradually became more frequent and more severe. About one month later she had an occasional dizzy spell, especially when she became fatigued, and during the latter part of May, she had three attacks of emesis in the early morning. About this time her headaches were relieved somewhat by putting on glasses, but became more pronounced a week later. On June 19 her pulse was 75; on June 21 it was 50; on June 23 it was 40; and on arrival at the hospital on June 24 her pulse was 36. She stood the trip (forty miles by auto) well.

Her neurological examination was negative, except for slight rigidity of the neck muscles, which was probably voluntary, because of excruciating headache; an irregular nystagmoid movement of the eyeballs to the right; sluggish right superficial reflexes; a positive Kernig, no knee-jerks, and a beginning optic neuritis. A lumbar puncture was performed, and about 35 c.c. of clear spinal fluid under pressure was removed. This gave some relief of her headache and her pulse went up to 48. The spinal fluid showed the following: fibrin web on standing; 24 lymphocytes per cu. mm., a positive globulin, a negative Wassermann, and negative colloidal gold curve. No tubercle bacilli or other bacteria were found. A tentative diagnosis of tubercular meningitis or epidemic encephalitis was made. Her temperature was normal; her pulse varied between 36 and 70. With daily lumbar punctures, her headaches were relieved, and she improved somewhat; however on July 1 she suddenly developed respiratory paralysis and died.

Post-mortem examination of the brain by Dr. J. C. McKinley revealed an internal hydrocephalus, and a tumor mass about 3.5 cm. in diameter entirely occluding the 4th ventricle. The tumor proved to be a sarcoma, probably arising from the choroid plexus. There were a few meningeal metastases, but no pathology was found in the other organs.

CASE 3.—Female, aged 58, married. She was seen in consultation with Dr. C. Bell, of St. Paul, October 30, 1923.

Her family history was negative; her past history was negative except that she had a carcinoma of the left breast removed in 1921 by Dr. Judd of Rochester. About eight months ago she developed some pains in her back and in both legs, especially the left ankle, which were thought to be rheumatic. About six months ago she noticed a small lump over the parietal region of her skull, painless and not tender. This grew quite rapidly, but caused no inconvenience except that it was an annoyance when she combed her hair. By October it was about the size and shape of half of a hen's egg. On October 30 she suddenly developed a generalized convulsion, and when I saw her, half an hour later, she was quite confused but able to answer questions.

Neurological examination was negative throughout. During the night she had two more convulsions and the next day her right hand was weak and awkward. Her condition has slowly progressed during the past month. She, furthermore, has definite tenderness over the 4th and 5th lumbar vertebrae. An x-ray of the skull revealed multiple areas of bone destruction, probably carcinomatous metastasis. An x-ray of the left angle was negative.

Dr. H. P. Ritchie reported a case of vesico-diverticulo-rectal fistula.

Mr. C. E. B., aged 63, consulted Dr. A. MacLaren on February 12, 1923.

History, fifteen years ago began to have frequency of urination, getting up three or four times at night for several years. Five years ago supposed to have had a prostatic abscess which discharged through rectum, followed by an urinary fistula. During this time several examinations were made, and carcinoma of the prostate was diagnosed by two reliable men.

The fistula closed after three months. He has been able to do his work until a few months ago, when the fistula returned.

Present complaint, evacuation of urine every two hours per rectum, and small quantity of urine per urethram after great exertion. Patient losing weight with general physical lassitude.

Cystoscopy, made by Dr. Paul Cook, showed a suppurative cystitis. At the right base of the bladder was a large diverticulum, so placed as to be in line with the ureter. The right ureter could not be found. The left was catheterized to find pus urine, but a competent kidney. There was little, if any, enlargement of the prostate.

Operation: The general conditions were most unfavorable for operative procedures, but the distressing state of the patient led him to assume all risks, therefore Dr. MacLaren asked me to make the attempt at closure. From Dr. Cook's report it seemed necessary to locate the right ureter, so I cystoscoped him before attacking from above, but was unable to find the meatus, nor at any time during the operation was the ureter seen. The extraordinary systitis led me to attempt an extra-vesical demonstration of the diverticulum, but such was the thickness and friability of the wall that the peritoneum was opened in two places before I desisted from this plan. The bladder was then opened, and the side wall bisected to and into the diverticulum. The fear was of making a large opening into the rectum, as it was natural to suppose that it was closely adherent to the pouch, but to the surprise and relief of Dr. Daugherty and myself a line of cleavage was readily shown so that the diverticulum was peeled off, like the skin from an orange, down to a point where we could see, by means of a headlight and constant use of the aspirator, the fistulous track, about one-fourth inch in diameter. This was clamped by forceps and tied, the sac removed, the wall of the bladder repaired, and drainage extra- and intra-vesicular instituted. As before stated, the meatus or ureter was never seen, yet from the location of the pouch and the extent of the dissection it must have been involved, but so far as we could see there were no signs of kidney obstruction at any time.

The convalescence was stormy, caused by the most extreme sepsis of the wound, resulting from the great infection of the bladder, microscopically due to the colon bacillus. The mercurochrome, now so widely advertised, seemed to give the best results in irrigating him.

After six weeks of trying time he recovered, and within the past few months he reports the fistula has remained closed, but that frequency still is present. Occasionally there is some leak from the suprapubic wound, but the general condition is so improved as to be satisfactory to all concerned.

It would be hard to conceive of this situation occurring in a woman. It must be a most rare situation, but the possibility of its occurrence may make it worth recording.

Dr. G. Schwyzer (Minneapolis) reported a case of adeno-carcinoma of an accessory thyroid.

A fifty-four year old woman consulted us in the first week of January, 1924, for a tumor on the right side of her neck below the jaw.



There is an extensive scar in the region of the clavicles and upper end of sternum, indicating a collar incision. We learn from the patient that she had a goiter operation three years ago. Following that operation she was hoarse, though her voice improved gradually, but never completely. Six months after this goiter operation the present tumor made its first appearance and was the size of a walnut, and it has gradually grown to the present size, that of a fist. The main distress through the tumor lies in the difficulty in swallowing food. The latter goes, as she says, to a certain point in her throat, and only by a special effort is the food pressed farther down.

This rather well-nourished woman has not lost any weight, and weighs at present 153 pounds, feels fairly strong, and is able to do heavy work, like washing and so on.

The tumor on the side of her neck is about four inches long and two inches in diameter vertically. The covering skin is normal, the consistency is generally soft elastic, partly fluctuating. It can be moved in a vertical sense, but not horizontally.

Laryngoscopically, we find, and this has been confirmed by the laryngologist, an unusual picture. A tumor of the size of a plum bulges out into the pharynx below the tonsil and obstructs greatly the laryngoscopic picture. Only the left vocal cord is visible, and this appears paretic. Palpating this tumorous projection in the pharynx we are convinced that we have to do with the same growth that exists on the outside. We even state a feeling of fluctuation between the inner and the outer part of the tumor. The mucous lining covering the pharynx is normal. There are no pains by palpation.

Our diagnosis was a branchial tumor, partially cystic.

We operated January 10 under local anesthesia. We used 100 c.c. of 0.5 per cent novocaine solution. Anesthesia was done after Braum,—prevertebral injection and blocking of the nerves around the tumor. Generally speaking the anesthesia was efficient. The operation was exceedingly difficult and involved unusual anatomical dissection. The nervus hypoglossus with its descending branches and the common carotid had to be dissected free from the tumor. The latter ran over the posterior part of the tumor, but anteriorly, inferiorly scar tissue made blunt dissection impossible. Posteriorly to the tumor lies the vertebral column, and between the two our hand tries to reach toward the pharynx. We are succeeding in peeling out the tumor away from the mucous lining of the pharynx, though the pharyngeal mucous lining tears in one place in a distance of about a half an inch. This rent is immediately sutured with chromic catgut. The wound is then closed and well drained.

Four hours after the operation the patient presents the picture of novocaine poisoning. She is stuporous, cyanosed in the face, has blue finger nails, and has an irregular pulse of only 70, breathing normal. We give 700 c.c. saline solution intravenously, together with calcium chloride given by rectum in repeated doses, so that she had about 8 grams that night. The sensorium becomes clear the next morning. She appears rather nervous. Continuous proctoclysis is given in order to avoid deglutition.

On the third day the patient takes nourishments. On the fourth day foul breath is noticed. The patient becomes unmanageable, talks irrationally, gives the picture of persecution insanity, and has to be isolated and restrained. The wound of the neck discharges some infected secretion. Thorough disinfection with dichloramin-T. We are probing the wound to see whether we have any communication between the outer wound and the pharynx. We are unable to feel the probe on the inside.

On the fifth day the patient is comatose with a strong regular pulse of 120. She cannot be aroused any more, and she succumbed the morning of the sixth day following the operation.

The pathologist, Dr. E. T. Bell, reports that sections from tissue of the tumor show adenocarcinoma of an accessory thyroid.

#### DISCUSSION

DR. G. SCHWYZER: The case presents interesting features, not only diagnostically and pathologically, but also post-operatively, on account of symptoms following local anesthesia. As I mentioned before, we used 100 c.c. of 0.5 per cent novocaine solution. In German literature I read of calcium chloride being given as an antidote for novocaine poisoning. It was rather astonishing to find the patient with a clear sensorium the next morning.

The question arose as to what this woman died from. The nearest cause we could think of, was infection due to the rent in the pharynx. In our estimation that rent opened up the day we noticed the foul breath. In regard to the psychical changes a thought of explanation came to us through the pathological report, which told us that we had to do with an accessory thyroid. The other pathologist who examined the specimen thought he found tissue indicating hyperthyroidism. Clinically, however, the patient did not present any such symptoms previous to operation.

DR. FARR: I have had no experience with novocaine poisoning because I have never seen anything more than slight manifestations of its toxicity. I would like to ask Dr. Schwyzer upon what he bases his diagnosis of novocaine poisoning. When novocaine comes in contact with the nerve cells and acts upon them the resulting substance formed is passive and innocuous. Toxic symptoms arise from the contact of novocaine with the central nervous system. Considering my own experience, and just having completed the reading of Dr. Braun's book in which he goes into the question of toxicity extensively, I cannot believe that the symptoms given by Dr. Schwyzer are evidence of novocaine poisoning.

Poisoning as late as this does not occur, as far as I know. When the toxic dose is given symptoms appear immediately. I would, therefore, question symptoms coming on four hours after operation being due to novocaine.

I have, in a few instances, accidentally injected a small amount of novocaine solution directly into an artery or vein under circumstances which permitted the solution to be carried to the central nervous system. The symptoms were always acute and immediate. The patient develops a bursting headache, becomes pale, the pupils dilate, nausea

and vomiting appear, and in case a lethal dose is given convulsions appear.

I have had a case of cocaine death. The patient developed convulsions and a paralysis of respiration. The heart continued to beat for one hour and five minutes under artificial respiration. In this case we supposed we were using novocaine. It would take more evidence than Dr. Schwyzer has given to convince me that the case he reported was one of novocaine poisoning, and I believe we should be extremely careful in checking up such cases so that the actual toxicity of novocaine may become known.

DR. SCHWYZER: In answer to Dr. Farr's remarks, I would like to say that the poisoning certainly followed the operation immediately, though I did not observe the patient for two to three hours directly after the operation. Still I positively know that four hours after the operation the patient was completely stuporous, could be aroused only by our shaking, and she was cyanosed at that time, her finger nails were black, and her former strong pulse weakened, decreased to only 70, and became very irregular. Of what other condition than of the poisoning through the local anesthetic could we think, when on the following morning we found the patient entirely clear, having a good expression, a free sensorium, and a strong pulse of 100?

Dr. Geo. Douglas Head reported a case of primary tuberculosis of the spleen with polycythemia and splenomegaly, treated with radium and benzol.

The following case is reported to the Society because of its scientific importance and the long interval of time, nearly six and a half years, during which the patient was observed under treatment with radium and benzol.

#### SUMMARY OF CASE REPORT

Mrs. Van., American, aged 49. Married; four children, two living. First examination January 26, 1917. The mother died of cancer of the stomach. One sister died of cancer of the uterus. The patient was said to have had "water diabetes" at three years of age. Had typhoid fever at eighteen years of age. Operated on for appendicitis six years ago. For five or six years the patient has occasionally taken antikamnia for headaches. Had menopause at forty-three years of age.

The patient's present illness dated back three years from the time of the primary examination. She complained of a feeling of tightness in the epigastrium, with excessive salivation and occasional vomiting spells. At first the attacks came only about once a month, but increased in frequency, and she has had as many as three a day, especially when under nervous strain. At that time the patient also had dizzy spells and tired easily. Was bothered with morning headaches and attacks of epistaxis. Had lost in weight eighteen pounds. Never vomited blood. Redness of her face became noticeable two years before the primary examination. This was more marked under exertion.

The patient was a short, slim woman with light hair and eyes. One was struck at once by the deep-red color of her skin and mucous membranes.

The face, forehead, and neck showed a highly dark red, while the fingers were red with a bluish tinge. The lips and alæ of the nose were a bluish tinge. The tongue was red with dilated veins on its under surface. The back of the throat was congested and covered with dilated venules. The inside of the lips and cheeks showed a dark red congested appearance. The eyes looked inflamed. The lids were red with prominent blood vessels over the sclera.

Careful physical examination was negative for organic disease outside of the enlarged spleen, the polycythemia, and the hypertension. The spleen could be felt two fingers' breadth below the costal margin. The surface was smooth; its edge hard and firm. The blood examination was as follows: Hemoglobin, 140 per cent; R. B. C., 8,760,000; W. B. C., 13,500. Differential count: P. M. N., 77.0; Large monos., 4.0; lympho., 12.5; trans., 3.0; eosin., 3.0; basophiles, 0.5; myelocytes, 0.0. The R. B. C. appeared normal in the stained smear. The blood pressure was 208 systolic and 110 diastolic. The von Pirquet tuberculin test was strongly positive. A test for the fragility of the red blood cells was normal. The phenolsulphonephthalein test was normal. The occult blood test for stools was negative. She gave a strong positive reaction to the subcutaneous tuberculin test.

All other findings being negative, a diagnosis of tuberculosis of the spleen, with polycythemia and hypertension, was made. The splenic area was exposed to 90 mgms. of radium on two successive days, and the patient was placed on benzol, five grains three times a day. Blood examination made seven weeks following the radium exposure was as follows: hemoglobin, 110 per cent; R. B. C., 8,650,000; W. B. C., 7,300; Differential count: P. M. N., 81.0; Large monos., 1.0; lympho., 16.5; trans., 0.0; eosino., 1.5; baso., 0.0; myelo., 0.0. The patient's color was much improved. The blood pressure was 130 systolic, 90 diastolic. The spleen was not palpable and was diminished in size to percussion. She had gained in weight, but had had a hemorrhage from the bowels of one cup of blood five weeks prior to this examination.

Six months later the patient was again examined. The blood examination showed marked improvement: hemoglobin, 105 per cent; R. B. C., 6,230,000; W. B. C., 12,800; differential count: P. M. N., 75.5; large monos., 3.0; lympho., 15.0; trans., 2.5; eosino., 0.0; baso., 0.0; myelo., 0.0. The blood pressure was 148 systolic, 88, diastolic.

In November, 1919, about three years after coming under observation, patient was again examined. Her color was nearly normal. The spleen was not palpable at the costal margin. She had taken benzol from time to time. The blood examination showed the hemoglobin 110 per cent; R. B. C., 6,975,000; W. B. C., 10,750. The blood pressure was 136 systolic; 82, diastolic.

In April, 1920, the patient returned again for bleeding of the gums when she cleaned her teeth. The blood examination showed more polycythemia, —hemoglobin, 125 per cent; R. B. C., 7,360,000. A second series of radium exposures of the spleen was made and the patient was advised to take benzol again. Six months after the second radium treatment, the blood showed marked improvement and



was as follows: hemoglobin, 100 per cent; R. B. C., 5,680,000; W. B. C., 17,000. Differential count: P. M. N., 79.0; lympho., 11.0; large monos., 5.0; trans., 2.0; eosino., 1.0; baso., 2.0.

In May, 1921, the patient was again examined as she was feeling much worse. The color of her face was a dark, suffused red, and the conjunctivæ very much injected and red. Her hands were a dark, bluish-red color. The spleen, however, could not be palpated below the costal margin. Blood pressure was 175 systolic; 90, diastolic. The blood examination showed the hemoglobin 125 per cent; R. B. C., 7,760,000; W. B. C., 14,000. The patient was again placed upon benzol, but made no improvement in the blood. In July, 1922, the blood examination was worse, hemoglobin, 133 per cent; R. B. C., 9,190,000; W. B. C., 18,300.

Radium over the spleen was again used, 100 mgms. for eight hours being given. The patient improved symptomatically, but no blood examination was made prior to September, 1923, when she returned again in another exacerbation, with a hemoglobin of 150 per cent; red cells, 8,112,000; leucocytes, 18,250. Radium 100 mgms. over an eight hour period was again used over the splenic area. No examinations of the blood have been made following the last radium treatment.

#### DISCUSSION

DR. ULRICH: I listened with great interest and some astonishment to the reading of this case, that is, a case of polycythemia associated with tuberculosis of the spleen. It has always been our assumption that tuberculosis of the spleen produces a profound anemia. Cirrhosis of the liver occasionally is associated with primary polycythemia, but I have never heard of polycythemia associated with tuberculosis of the spleen. Primary tuberculosis of the spleen is exceedingly rare, and the diagnosis can be made with accuracy only at the post mortem or on biopsy. I do not think in this report that one can make a diagnosis of tuberculosis of the spleen by a von Pirquet reaction and subcutaneous tuberculin reaction. The cure of primary tuberculosis of the spleen is splenectomy.

DR. CROSS: I would like to ask Dr. Head whether the same clinical improvement followed the last use of radium, as in the other applications of it.

DR. MANN: I do not know very much about radium, but I would like to ask a question. As I understand it, the distance through which radium is effective is about 2 cm. when the hard rays are screened off, so in this case it could not shine into the spleen very far even if it could reach the spleen. Of course this patient was a slender woman. In that case I would like to ask Dr. Head why he could not get a much better effect from  $x$ -ray, especially deep  $x$ -ray, which would shine all the way through, if he did not want the spleen taken out.

DR. SCHWYZER: The hardest gamma rays are more penetrating than the hottest  $x$ -ray. It will penetrate 26½ cm. very well and go even through the body in a very large spleen. Radium will surely work. The filtering must be pretty strong. I remember a case I had in which we filtered through 1 mm. of brass, 0.5 mm. of silver, and in addition

2 mm. of lead. Of course lead gives strong beta rays, and you have to use rubber over it. This spleen went down to one-third before we operated.

DR. HEAD (closing): I can only say in answer to Dr. Mann's suggestion with relation to the penetration of radium that the spleen diminished in size after the use of radium, and the clinical evidence was very clear that the use of the radium had considerable to do with it. One of the interesting features about this case is that we did not apply it only once, but repeated the radium on three successive occasions, and to me that is fairly good evidence that it was the radium which produced the favorable outcome.

In answer to Dr. Cross' question, the last exposure has been too recent to determine whether or not it will be of any real benefit. In the next to the last exposure I do not think we got as profound an effect. At the present time the patient's blood is as polycythemic as at any time.

I was in hopes that in the discussion the natural exacerbations of the disease might be brought out. That is, do the cases, like pernicious anemia, run courses with exacerbations and remissions when left to themselves? In the literature one finds very few reports of cases of polycythemia that have been followed over any long period of years to determine just the course which they pursue uninfluenced by drugs or other management. Osler had cases reported over a number of years.

In answer to Dr. Ulrich's expressed doubt relative to the etiological relationship between tuberculosis and polycythemia: If I remember correctly, one of the first cases on record was proven at autopsy to be tuberculosis of the spleen. In Weber's monograph on polycythemia the detailed report of the authentic cases which he presents reveals tuberculosis as a prominent pathological factor in the history of the cases and the autopsy findings. Tuberculosis of the spleen has been established by numerous case reports as associated with polycythemia and splenomegaly. I think if Dr. Ulrich will read Weber's and Winternitz's studies, he will change his notions regarding the interdependence of tuberculosis of the spleen and polycythemia.

Of course I do not want to contend that the subcutaneous tuberculin test or a positive von Pirquet test is proof of tuberculosis of the spleen. I think, however, that with the clinical absence of tuberculosis or other disease in other organs and the presence of the positive tuberculin tests, there was justified the assumption that we have a true case of primary tuberculosis of the spleen with polycythemia in this case. At least I would stand for that diagnosis until some other could be proved.

This case is of a good deal of interest scientifically for the reason that we have been able to watch a real case of polycythemia vera, probably proven to be of tuberculous origin, over six years of time, through three distinct exacerbations, and been able to watch the profound effect, on the blood and the size of the spleen which radium produced with the use of benzol. My own clinical opinion is that we have received more benefit from the radium than the benzol. I have now under observation a man forty years of age, with polycythemia and enlarged spleen, who about two months ago vomited a bowl full

of blood. This patient gives a four plus Wassermann and the diagnosis of syphilis of the spleen seems justified. In these two cases we have, therefore, polycythemia with splenomegaly caused by two of the great contenders for pathological honors, the tubercle bacillus and the spirochete of syphilis.

Dr. J. G. Cross reported the following case:

This case is reported because of the great difficulty in making a diagnosis. The patient was a man of 64, weighing in health 190 lb., a lawyer by profession. With the exception of a so-called "nervous breakdown" many years ago and a suspicion of tuberculosis as a young man, his history to July, 1923, is practically that of a healthy man. At that time he showed retention of urine and a prostatic enlargement was made out and operation was advised by his physicians, Dr. Staples and Dr. Butler. Prostatectomy was done at Rochester in two stages, and he returned home to Minneapolis in early November, 1923. Except for the presence of some albumin and pus in the urine as is common in such cases, his recovery seemed to be very good, and he resumed the practice of his profession.

The first week in January he attended the annual stag dinner given by one of his friends, at which such delicacies as pork sausages, sauerkraut, and buckwheat cakes were partaken of. He had some immediate distress with nausea and vomiting. He was seen about three days later because the vomiting did not cease. His temperature was 99.2° and, as a matter of fact, never was raised to 100. Pulse rate was 80 to 90; respiration, normal. He complained of the nausea and of slight pain in the left loin extending around toward the back, at times beyond the posterior axillary line. There were no masses in the abdomen and there was a marked absence of any tender points. Bowel movements were easily induced with enemas, and the urine contained, as above stated, pus and albumin, but no sugar and no casts. The stools were entirely negative, and I wish especially to emphasize the fact that at no time was fat or fatty acids present in the stool, nor was glycosuria ever found, though the urine was tested almost daily during the entire illness.

Blood examination showed 5,400,000 red cells; hemoglobin 80 to 85; white cells, 23,000 to 24,160, with 88 per cent p. m. n., 12 per cent lymphocytes (5 small and 7 large). Blood chemistry on January 21 showed urea nitrogen 28.50 and creatinine 1.88.

On account of persistent nausea no examination of the stomach with barium could be done. Fluoroscopy of the chest, afterwards corroborated by roentgenography, gave very dense mediastinal shadows, almost obliterating the left border of the heart, and extending above and to the outside of the aortic arch, as well as to the right of the heart strip on the other side. These shadows did not pulsate, and on account of their density they were assumed to be probably due to new growths. At no time were there any symptoms referable to the chest except a temporary pleuritic pain on the left side, for which nothing could be found at autopsy.

On account of the absence of fever, the persistence of nausea and vomiting, the leukocytosis, together with the x-ray picture in the chest, it seemed

most likely, even in the absence of a mass in the abdomen, that the patient was suffering from new growth in the stomach and mediastinum. Death occurred on February 7 from asthenia.

Omitting the details unessential to the diagnosis, the autopsy findings are as follows:

The abdomen contained only a very small amount of clear fluid. The appendix is long, thin, and adherent behind the cecum. It has the consistence of a fibrous cord. There are old fibrous bands between the gall-bladder and the hepatic flexure of the colon, and the colon and duodenum. The omentum is adherent to the left costal margin.

The heart showed some degenerative changes but no gross valvular lesions. Coronaries are not narrow. The lungs are light. There are no palpable nodules.

The liver weighed 2,140 grams. The cut surface showing very definite yellowish tinge. The gall-bladder is dilated, but not thickened, and there are no calculi in the cavity. The ducts are patent.

The stomach: There are no lesions of the mucous membrane. A semi-fluctuant mass protrudes into the fundus a short distance outside the stomach. No lesions are found anywhere in the gastro-intestinal tract.

On cutting through the foramen of Winslow cloudy fluid, similar to that previously mentioned, appears, but not in marked quantity. On separating the colon a cavity is entered which is at first thought to be the cavity of the stomach, but it proves to be the markedly thickened lesser peritoneal cavity filled with cloudy fluid. In the posterior walls of this cavity is seen a yellowish necrotic mass about 2 cm. in diameter. Later investigation shows that this is necrotic pancreatic tissue. To the right of this necrotic mass is a small rounded cavity which on probing is found to lead to the foramen of Winslow. This channel is about 1 cm. in diameter. On following up the pancreatic duct from the ampulla it is found to lead to a necrotic mass about 3 cm. in diameter, involving the tail of the pancreas, and with necrosis extending into the lesser peritoneal cavity. In the adipose tissue about the pancreas, small yellowish nodules are found which grossly strongly suggest fat necroses. The semi-fluctuant mass near the cardiac end of the stomach is found to be an extra-gastric collection of fluid with fat necrosis in its wall.

The genital tract showed no gross changes except the operation scars and a rim of prostatic tissue, the mass of it representing about one-third that of an average prostate. In this is a cavity about 1 cm. in diameter and irregular in outline.

The lymph nodes at the bifurcation of the trachea are moderately enlarged and show much coal pigment, but in a few of them grayish-white translucent areas are present, the largest of these measuring about 1 cm. in diameter and somewhat suggestive of tumor, although they may be hyperplastic lymphoid tissue. No lesions in the pre-aortic or pelvic lymph nodes. Marked en-



largement of lymph nodes at the bifurcation of the trachea.

Microscopic examination showed marked tubular injury and arteriosclerotic change in the kidney. Prostate: no evidence of malignancy. Tracheobronchial lymph nodes: marked hyperplasia with necrosis, but no evidence of carcinoma. Pancreas: extensive acute and chronic changes, the acute changes being ante-mortem necrosis with extensive leucocytic infiltration about these necroses, the chronic change being marked inter- and intra-lobular fibrosis.

Diagnosis: 1. Suppurative pancreatitis.

2. Cloudy swelling of myocardium with epicardial petechial hemorrhages.

3. Fatty liver.

It will be seen that there are interesting features to this case from both the diagnostic and pathologic viewpoints. I believe it is safe to say that his condition was impossible to diagnose clinically. There was nothing in the physical examination, his symptoms, nor in the laboratory findings which would lead one to look for a lesion in the pancreas. His presenting trouble was the constant nausea and persistent vomiting with increase of his white blood cells and absence of fever. It was evident at autopsy that there was enough functioning pancreas left to explain why there was no free fat in his stools nor sugar in his urine.

A little later another patient was seen with a very much distended abdomen, absence of fever, and pain which prevented his lying down. This had been present only a few days. Previous health had been unusually good. The man, about 60 years old, was in active business life. The pain was epigastric. There was some vomiting, but it was not persistent. There was almost no rise of temperature, but there was a white blood count between 18,000 and 20,000. In the region of the gall-bladder there was a palpable mass somewhat tender to touch. In the epigastrium a tumor could be palpated, but its form and size were difficult to make out.

The abdomen was very tense like that found in cirrhosis of the liver ascites; however the dullness to percussion was entirely left sided. The urine was sugar free. X-ray of the stomach showed a peculiar shape—a sort of teapot dome effect—in that the prepyloric antrum was narrowed to the size of a thumb for a distance from three to four inches. Gastric analysis was negative, free fat being found in the stools. Consultation with the surgeon was urged on the ground that surgical exploration of the pancreas should not be longer delayed. I will ask Dr. Mann to speak of this case from the surgical side, as he operated upon him.

#### DISCUSSION

DR. MANN: On examination this man presented two masses which could be felt. One, a low bulging mass in the epigastrium, and the other a sort of roughened mass in the gall-bladder region, but a little outside of that region. His symptoms were centered about the center of the abdomen; the pain was constant and rather intense. Having seen a few cases of pancreatic cyst and knowing that is about

the only thing which presents a tumor which can be seen or felt in the epigastrium, I made a diagnosis of pancreatic cyst (provisional). At operation a mass presented exactly where the pancreas would be, about half the size of a croquet ball, rounded on one side, and at one point did have a cyst about the size of a large marble, so my diagnosis checked up with that in a small way. I made a small opening into this mass and we got some lobulated material from 1 cm. to 2 cm. long about the consistency of oysters, but did not get very much of it. On microscopic examination that proved to be lymphosarcoma. The mass on the left side of the liver was rolled up omentum.

This man stood the operation very well. He died to-day, over four weeks after his operation. He has had no pain since the operation. I presume it was the tension on that capsule which caused the pain.

The x-rays were as Dr. Cross has stated, and the diagnosis of the röntgenologist was carcinoma of the stomach, which we rather doubted. I presume there was a sarcoma of the retroperitoneal lymph glands beginning probably in some gland close in near the head of the pancreas.

DR. HEAD: I would like to ask Dr. Cross two questions: First, in the first case reported, did the man show evidence of profound prostration or exhaustion indicative of a serious organic condition, or did the clinical picture present more of a toxic state? Second, how long from the onset of the symptoms was it before the patient died?

DR. CROSS (closing): It is hard to tell just when this process started. I imagine that the stag dinner furnished the stimulus after which things progressed rather rapidly, but that he had the beginnings of this process in the pancreas for some time before. Of course that is speculation. The stag dinner took place on the 5th of January; I saw him on the 9th; and he died on February 7th. He was not markedly prostrated.

I want to mention the fact again that leucocytosis without fever was present in both of these cases. In the one case the pancreas was five or six times as large as a normal pancreas. There was almost no free fluid in the abdomen, and the distention of the abdomen was due to the increased size of the pancreas. I should be very suspicious again with a leucocytosis of 24,000 and absence of fever.

He was not prostrated, but he was nauseated almost continuously. There was no mass to be felt anywhere. He had pleuritic pain for a few days.

Another case of pancreatitis had exactly the same pain, but higher up. It might have been described in the same terms in which one would describe splenic infarct.

He presented no symptoms of obstruction of the bowel, and never had any difficulty with bowel movements.

Dr. A. Schwyzer showed several x-ray films of a case of empyema following pneumonia in a boy 11 years of age. Trocar and cannula were inserted, and the cavity Dakinized.

JOHN E. HYNES, M.D.

**THE**  
**JOURNAL-LANCET**

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
 (For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

APRIL 15, 1924

## MEDICAL EDUCATION AND LICENSURE

Attention is called to the *Journal of the American Medical Association* of March 22, page 972, on the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, which met in Chicago on March third, fourth, and fifth. A very interesting discussion was brought out on the present opportunity for medical study in the United States, and refers to the highly creditable work of the weeding out of low-grade and commercial medical schools, and raising the standards of medical education. No properly qualified medical student has failed to obtain admission in some one of the standard schools of the country. By contrast it has been shown that in a number of instances the medical student has insisted upon following his course in a low-grade school; but he does not consider the worth of the commodity which he intends to buy. Although an education in the really good school usually costs the institution more than the student pays for it, the training in an inferior school is most expensive in the long run. The low-grade student, however, despairing of receiving a diploma, goes to another school of even lower grade and is graduated. But invariably this man regrets the time he spent in such an institution, and feels that he has lost in years; he fails to get credit for his work, and ultimately has to do something different in the way of rounding out his medical education.

There seems to be a feeling, too, that there is plenty of information for the benefit of the young medical students, but it is surprising how few of them either get it or are impressed by it. Fortunately, this occurs among the young men of foreign birth, and in going over the circumstances attending their course of study they have admitted that they had not fully considered what it meant to take up a course of medical study.

The recent exposé in Connecticut shows that there are six cults practising medicine by law, and this, in connection with the purchased-diploma plan, has made the study of Connecticut medical work a very difficult one. They have already found that it will be impossible to introduce ideal bills in the legislature to clean up the situation. But most of the legislators felt that each cult deserved a special examining board, and they have refused, so far, to adopt a one-board system.

The investigation carried on by Harry Brundage, a reporter on the *St. Louis Star*, is really responsible for the unearthing of the Connecticut and Kansas diploma-bill methods. Some of the men who either bought or secured diplomas illegally have indictments against them. Connecticut does not stand alone in this matter. Many other states ought to have a house-cleaning in medicine. In New York it has been suggested that every physician register annually and pay a two-dollar fee for that registration. If he is not registered it shows he is an illegal practitioner. The New Yorkers also want to introduce another point in the proposed law, that the prosecution of illegal practitioners shall be taken out of the hands of the district attorney and put in the hands of the attorney-general of the state. A third point suggested is that it shall be illegal for anyone but a licensed physician, dentist, or veterinarian to use the word "Doctor" before or after his name, and the governor of New York has promised to sign such a bill. In Ohio they found it was necessary to amend the medical-practice act and put some teeth in it; that most of the troubles in New York and Connecticut had been due to the enforcement section and the impossibility of its application. It does seem a little doubtful, sometimes, whether the word "doctor" means anything or not when we see it attached to so many different kinds of practitioners. The writer remembers, in years gone by, the publisher of a country newspaper who played a fiddle for the dances in surrounding towns, and he was called "professor"!



It does not seem to be definitely recognized that medical-practice acts were enacted for the protection of the public, not for the protection of the doctor. They are all legally founded on the idea that they are public-health measures, and no one should be allowed to practice who does not have a license from the state. In Texas they consider the greatest curse of the medical profession is the multiple state boards which induces crookedness and an unfair standard for the practice of medicine.

The education of the people is something which the doctors have long tried to do, and they have made but little progress and have met with many discouragements. Some one has suggested that the American Medical Association should put on a campaign through moving-picture shows, not with the doctors behind it, but with some big publication. The screen might show every night in ten thousand cities of the United States, reels of the diphtheria bacillus, with the information that this germ causes diphtheria and has killed thousands and thousands of children each year. Then, some effort should be made to educate school children about coughing and sneezing, and the use of common spoons or cups or drinking vessels which might, through the same channels, increase the number of cases of diphtheria. The same line of education should be carried on in regard to typhoid fever, meningitis, and small-pox until the public understands it. In this way the public in one night could be more efficiently educated than in ten thousand years in any other way.

#### EDUCATIONAL LAW HELD UNCONSTITUTIONAL

In a news item from Portland, Oregon, we learn that the Education Law under which all children between the ages of eight and sixteen are required to attend public school was declared unconstitutional in an opinion recently handed down in the Federal Court. The law, it seems, was attacked on the ground that it discriminated between public and parochial schools. If we had a few more laws that were attacked from this standpoint it might be a very good thing for the methods of education all over the country.

There are certain types of children, even between the ages of eight and sixteen, who are not suitable for the average public-school requirements. They are themselves "unconstitutional," and hence have no business in the fierce fight that has been waging for so-called modern

educational methods. Particularly at this time and in this age, the children who are approaching sixteen are entirely too much educated in certain phases of life, and they are so zealous in their social and out-of-door and indoor sports that they have very little time for the real educational ideas. Too much pressure is put upon them, and far too little attention is given them by the parents and the home, so that many of them are ready for a breakdown when they are suddenly forced into some industrial or occupational work. They suffer from lack of sufficient sleep, many of them are undernourished, and many of them are on the edge of a nervous or a mental disorder.

Supervision by the parents is most essential, provided the parents are in sympathy with the conduct of the child—and this is one of our greatest stumbling blocks. Many of our present-day parents are too active in an effort to entertain themselves and be entertained. They, too, suffer from lack of proper foods and lack of sleep, because it is impossible for many of these indifferent parents to keep up with the methods and manners of so-called society endeavors. Hence the children run wild; they do pretty much as they please; very few questions are asked; very few restrictions are placed upon them; and their education becomes more or less a mockery. They are not prepared for the life which is to be allotted them, they are wholly unprepared physically and mentally by lack of discipline, and they are a part of the great body of children who are breaking down all barriers which are educational and health-producing.

#### SMALLPOX

It seems quite evident from what we learn from various sources that an epidemic of smallpox is to be expected. The reports from many states, Eastern and Western, as well as Northern, indicate that smallpox is very much in evidence. From Birmingham, Ala., twenty cases were reported within two days, with a total number of fifty-nine cases. Michigan has reported four hundred twenty-one cases, one hundred forty of which are in Detroit. In Windsor, Ontario, there were, over the week-end, fifteen deaths, with sixty additional cases. Twenty thousand persons in Windsor and the border cities were vaccinated February twenty-fifth. Later reports state that twenty-three cases of smallpox have been found in Calgary, Alberta. Detroit has physicians and nurses at the ferry docks to inspect persons from Ontario, and those who are

unable to show certificates of vaccination are refused admittance.

Dr. Harrington, Health Commissioner of Minneapolis, in a very pointed address at the meeting of the Health Exposition the other day, called attention to the necessity of precautionary measures,

Canada reports the largest number, and the epidemic is gradually on its way south. What we can do under the circumstances is problematical, for Minnesota repealed her compulsory-vaccination law some years ago. Then, too, the large number of adherents of the various cults declined to be vaccinated, refused to be vaccinated for their own protection against smallpox, and the City Health Department has no enforcement law which can compel vaccination unless it be through the exclusion of children from the public schools; at all events, when they learn that a child has been exposed to the infection, they can prohibit the attendance of the child at school until after the period of incubation. Or if a child belonging to a non-sectarian class of people has smallpox, the city has authority to quarantine for smallpox.

So much for this class of people. Other classes should be educated to the necessity of vaccination. Parents should be warned of approaching danger and vaccination should be urged as a safety measure without delay.

Although smallpox is supposed to be a winter-borne disease, it is present at other seasons, as well, and the epidemic may be just as difficult to control. The operation for vaccination is so safe nowadays from the pure vaccine that is sent out, and the results of vaccination are so trivial in their course under proper vaccination methods and proper care, that the cultists really ought to welcome the protection. But they will not, consequently, we may expect some trouble and much inconvenience to the Health Department. It would seem as if the warnings sent out and the knowledge that smallpox is on its way here, and is here to the extent of forty or fifty cases and is under the protection of the City Health Department, ought to convince our visitors that we are taking all necessary precautions against the invasion of smallpox. In this way, then, business would not suffer. And if the large employers of people would assist the health authorities and have their employees vaccinated, the danger would be reduced to the minimum.

It will be recalled by some, perhaps, but a few years ago when the compulsory vaccination

law was attacked the president and secretary of the Antivaccination Society both died of virulent smallpox before the bill repealing the law was passed. This ought to have been a striking commentary and an example, but it was passed over as nothing. In fact, it seems as if most of the people were indifferent to things, particularly to public-health measures. They take very little interest in these efforts, they care so little for them that they do not even pay attention to warnings or adopt means of protection, and are indifferent when it comes to the household, except when they are inconvenienced by being obliged to remain in quarantine; then they howl, as most objectors howl against something that is almost entirely due to a fault within themselves.

### THE MINNEAPOLIS HEALTH EXPOSITION

The Hennepin County Medical Society is to put before the people of the Northwest in the Kenwood Armory on May 3-10 an exhibit of health promotion and health-preserving methods whose magnitude and influence can hardly be visualized by one not familiar with the scope of the work. Hundreds, if not thousands, of people are engaged in the preparation of this Exhibit along scientific and efficient lines, the result of which will give "dividends of prevention" of inestimable value to the individual and to the community not voluntarily withdrawing from the pale of such influence. Men and women of public spirit and large vision are bringing to the undertaking marked executive abilities and are making sacrifices of their time, talents, and money to make better health and happier conditions for all people,—the poor, the well-to-do, and the rich, all, in short, who can be reached.

A recent statement of the management of the Exposition well sets forth the scope of the work, without any reference, however, to the large group of ardent workers who constitute the personnel of the management, and the corps of scientific and professional assistants, that are glad to give it herewith.

#### MINNEAPOLIS HEALTH EXPOSITION

Most men and women are lazy and inefficient after thirty-five because of bad health habits. They have acquired and they maintain such habits because they have never been taught differently. Saturation with all kinds of reading leaves them indifferent to the literature of health. In a few years they are tenants of hospitals, asylums, jails, institutions, and cemeteries, or are rendering an over-laborious and under-efficient service in their life's work.



Records of employment prove that the manual worker, who has the best chance, is ill or injured an average of six days each year.

Taxation annually takes many millions in Minnesota for the conservation of the unfit; charity takes untold millions more for the same purpose. Our institutions are packed to suffocation. We must build more. Our charities are overwhelmed. We must give more.

Sifting the ashes of the past we find no coals of encouragement for the future except in preventive work. The health agencies of Minneapolis under leadership of Medical Science in all its branches offer the beginning of a solution for a part of this problem.

In the Minneapolis Health Exposition, without charge to the public, complete and specialized physical examination will be given to demonstrate the value of looking over the human machine as often as the automobile. Adults, children and infants will be included in the examination work. Hundreds of physicians, dentists, nurses and volunteer aids will give their services freely in this work. All the scientific equipment of modern medicine will be used and demonstrated in the Exposition.

Features: motion pictures, plays, pageants, athletic exercises, and many other special features will be provided for entertainment.

Upon this background will appear hundreds of exhibits calculated to teach in an easy understandable fashion the road to health, comfort, happiness and safety. There will be nothing of the disagreeable or morbid about the exposition. Life, color, light and motion will predominate. Over fifteen hundred demonstrators and nearly two thousand entertainers, will produce the exposition for the interest and instruction of at least a hundred thousand people from Minneapolis and all of Minnesota.

The various contests announced from time to time, the special events already scheduled and to be announced later are all designed to give every classification of the population a definite interest in the movement.

#### SCIENTIFIC EXHIBITS

The comprehensiveness of the movement is indicated by the following array of scientific educational exhibitors:

University of Minnesota:  
 School of Medicine  
 School of Dentistry  
 School of Pharmacy  
 Nursing Education.  
 Hospitals and Nursing, including  
 Nursing Schools, the Public Health Nurse  
 and Joint Hospital exhibits  
 Public Health Association  
 Tuberculosis Association  
 Public Safety Bureau of Minneapolis  
 Civic and Commerce Association  
 Police Department  
 Fire Department  
 Infant Welfare Society  
 Visiting Nurses Association  
 Child's Guidance Clinic  
 City Public School System

City Health Department  
 State Board of Health  
 Public Library  
 U. S. Public Health Service  
 American Medical Association  
 Boy Scouts of America  
 Minneapolis District Dental Association  
 Minneapolis Clinical Association  
 Council of Social Association  
 Dietetics and Nutrition  
 Narcotics  
 Society for the Blind

#### CLINICAL DIVISIONS

The General Physical Survey includes the following:

Registration,  
 Disposal and Social Service  
 General Surgery:  
 1. Eye, Ear, Nose and Throat  
 2. Orthopedics  
 3. Thyroid and Cancer  
 4. Urology  
 General Medicine:  
 1. Lungs  
 2. Heart  
 3. Gastro-Intestinal  
 4. General Medicine  
 5. Neurology and Psychiatry  
 6. Skin  
 Obstetrics and Gynecology  
 X-Ray, Fluoroscope and Radium  
 Laboratory  
 Dentistry

#### OTHER INFORMATION

The commercial exhibits will be made to harmonize with the rest of the Exposition and will include those articles and services which promote health, comfort and happiness.

### NEWS ITEMS

The Elk River Hospital because of lack of patronage has suspended operation.

Dr. C. Eugene Riggs, of St. Paul, is home from Florida, where he spent the winter.

Dr. Charles H. Mayo has been reappointed volunteer health officer of Rochester.

Work has been resumed on the building of the Ashton Memorial Hospital at Pipestone.

Dr. Herbert Davis, of St. Paul, has returned from an extended trip to South America.

Dr. H. L. Staples, of Minneapolis, has returned from California, where he spent the winter.

Dr. Theodore Tennyson, of Minneapolis, has returned from an extended visit to California.

Dr. C. D'a Wright of Minneapolis has returned from his winter home at Ormond Beach, Florida.

Dr. Herman A. Dreschler, of St. Paul, will soon go to Switzerland to pursue studies in goiter.

A drive for a large sum to enlarge St. Andrew's Hospital of Minneapolis, now over-crowded, is talked of.

St. Paul will celebrate Child Health Day, to be observed nationally on May 1st, with elaborate ceremonies.

Dr. and Mrs. O'Leary of the Mayo Clinic, have returned from San Antonio where they spent the winter.

The Northern Pacific Hospital at St. Paul, cared for 7,298 patients last year at an average daily cost of \$3.53 per patient.

Dr. O. J. Engstrand, a graduate of the University of Minnesota, has formed a partnership with Dr. E. H. Smith, of Bemidji.

Assistant Surgeon General C. C. Pierce of the U. S. Public Health Service will come to Minneapolis to lecture during the Health Exposition.

Dr. G. S. Schnarrenberger, who recently returned from Heidelberg, Germany, has become associated with Dr. J. S. Collins, of Wabasha.

Dr. P. P. Vinson, of Rochester, spoke before the sectional meeting of the American College of Surgeons in Columbus, Ohio, on March 24.

Dr. W. O. Ott, who was Dr. Adson's assistant at the Mayo Clinic, has announced his connection with the Harris Clinic of Fort Worth, Texas.

Dr. J. A. Wilkins, who has been at the Mayo Clinic for several years, has gone to Norfolk, Virginia, to enter the practice of internal medicine.

The Minnesota State Board of Examiners of Nurses will hold an examination for registration on April 24, 25, and 26, at St. Paul, Duluth and Rochester.

Dr. J. G. Meisser, who has been associated with Dr. Rosenow, of Rochester, for several years, has gone to Cleveland to work with Dr. Weston A. Price.

The Minnesota Conference of the Lutheran Augustana Synod, in session in Minneapolis last month, authorized the raising of \$500,000 to replace the building of Bethesda Hospital of St. Paul.

Dr. F. W. Gaarde and Dr. R. M. Wilder, of

Rochester, attended a meeting of the Billings Club in Chicago, April 1, at which the seventieth birthday anniversary of Dr. Billings was celebrated.

The Hennepin County Medical Society has offered a prize of \$50 for the best essay on a military subject written by students of the Junior Medical Reserve Corps of the University of Minnesota.

Dr. R. D. Carman, of Rochester, gave a memorial address at the services held at Washington University for Dr. Walter Mills, with whom he had been associated in his early work with the x-ray.

Dr. L. Haynes Fowler has completed a three-year Fellowship in surgery in the Mayo Foundation and is now associated with Dr. F. A. Duns-moor, at 100 Andrus Building, Minneapolis, for the practice of surgery.

Dr. R. G. Pearce, of Akron, Ohio, formerly on the faculty of the Western Reserve Medical School, delivered an address last night before the Alpha Omega Alpha Medical Society of the University of Minnesota.

Professor Heinrich Finkelstein, the famous pediatrician of Berlin, will visit the Twin Cities April 25-27 (inclusive) and will give a series of lectures and clinics under the auspices of the Northwestern Pediatric Society.

Dr. Olaf K. Eggen, of Minneapolis, died on March 26, at the age of 45. Death was caused by an automobile accident. Dr. Eggen was a graduate of Jefferson Medical College, class of '09, and had practiced in Minneapolis since graduation.

Dr. M. F. Guyer, Professor of Zoology, University of Wisconsin, gave the fifth in a series of lectures on heredity under the auspices of the Mayo Foundation and its chapter of Sigma Xi, Friday, March 28. His subject was "Eugenics."

Dr. Walter Christinsen, of Lidgerwood, N. D., who is soon to locate in California, was the recipient of a gold pen and pencil from his fellow practitioners, presented at the monthly meeting of the Richland County (N. D.) Medical Society last week.

Dr. Halbert L. Dunn, of Minneapolis, whose letter from New York City was published in our last issue, is spending a year with Dr. George Draper in his Constitutional Clinic in the Presbyterian Hospital. He is engaged mainly in research work.



Dr. A. J. Clay, of the Clinic of Drs. MacGregor, Hanna & Clay, of Fargo, N. D., has gone to Barnes Hospital, St. Louis, Mo., to take a course in Insulin treatment of diabetes, as offered by the Rockefeller Institute. He will be absent one month.

At the March meeting of the Aberdeen (S. D.) District Medical Society, papers were read by Drs. R. G. Mayer, of Aberdeen, and Dr. J. E. Dunn of Groton. Dr. F. E. Clough, of Lead, President of the State Association, was present and spoke to the Society.

Dr. William L. Clark and his associate, Dr. Eugene J. Asnis, of Philadelphia spent the week of April 7 to 14 in Rochester, and gave Mayo Foundation lectures on April 10 and 11 on electrodessication and coagulation methods in the treatment of neoplastic disease.

Dr. Edson C. Miller, of Brookings, S. D., will soon celebrate his fiftieth year in the practice of medicine. He graduated from Northwestern in 1875, and began practice in Iowa the same year and has practiced in South Dakota, we believe, for a quarter of a century.

Dr. Ruth E. Boynton, director of Child Hygiene, Minnesota State Board of Health, will speak at the annual meeting of the National League of Women Voters in Buffalo, N. Y., next week. She will review the work done in Minnesota under the Sheppard-Towner Bill.

A short course for women in emergency nursing measures opens at the University of Minnesota Farm School to-morrow. Unmarried girls and married women are invited. The fee is only \$1.00, and the course covers afternoon lectures on six consecutive Wednesdays.

The week beginning May 5 will be a busy one in Minneapolis, and we fear physicians coming for Clinic Week and to visit the Health Exposition will be disappointed if they do not make their hotel reservations, as other meetings in the same week will fill all the hotels of the city.

The annual meeting of the South Dakota State Medical Association will be held at Mitchell, S. D., on May 20 and 21, the House of Delegates meeting on the 19th. The program will consist mainly of dry clinics. The names of outside men on the program will be given in our next issue.

A news item stating that a bonus would be paid to the physician who would locate in Sidney, Montana, inadvertently got into these col-

umns last month. Now the mayor of Sidney says numerous inquiries have been received concerning the matter, and that the city is amply supplied with physicians.

Dr. Allen W. Martin, formerly of Donaldson, La., has joined the Stutsman County Clinic of Jamestown, N. D., to succeed the late Dr. Golseth of the Clinic. Dr. Martin is a graduate of the University of Louisville and of the New York Postgraduate Eye and Ear College, and has done special work in New Orleans, St. Louis, Chicago, and Rochester.

Fifty cities have entered a nationwide health teaching contest under the auspices of the American Child Health Association, and fifty scholarships valued at \$500 each will be given by the Metropolitan Life Insurance Co. The award will be made by men of national reputation. Fargo, N. D., ranks eighth for the number of teachers engaged in the work.

Dr. Albert E. Higbee, of Minneapolis, died on April 3, at the age of 82. Dr. Higbee was a graduate of the Hahnemann Medical School (The General Medical College) of Chicago, class of '71, and had practiced in Red Wing, St. Paul, and Minneapolis since his graduation. He was a Civil War veteran, had been a professor in the College of Medicine and Surgery of the University of Minnesota, and was a Scottish Rite Mason.

Dr. Lysander P. Foster, Minneapolis' oldest and most distinguished pioneer physician, died last week at the age of 88. Dr. Foster came to St. Anthony (now Minneapolis) in 1848. He studied at Rush in 1873 and graduated from Hahnemann (Chicago) in 1874, and was assistant professor of materia medica in the latter school in 1881-82. He was also a lawyer and an ordained minister, practicing each profession for some years.

The Nopeming State Tuberculosis Sanatorium has changed its policy as regards the home treatment of tuberculous patients and hereafter it will give its patients special training in home treatment in order to shorten their stay in the hospital. Training of those in the patient's home will be given, and efforts will be made not to lessen the patient's hope of recovery when he leaves the hospital to take up home treatment. Dr. Laird, Supt. of Nopeming, heads the movement.

Dr. A. A. Whittemore, State Health Officer of North Dakota, is endeavoring to establish four full-time county health boards in that state with

the financial assistance of the International Health Board, a Division of the Rockefeller Foundation, which will donate as much money as the County Commissioners give. The money thus raised, put with the Sheppard-Towner fund, would provide for efficient full-time health officers. The plan is to begin work in Ward and Stutsman Counties, of which Minot and Jamestown are the respective county-seats.

The Northern Minnesota Medical Association will hold its annual meeting at Duluth on August 4 and 5. Dr. W. L. Burnap, the president, and Dr. W. W. Will, chairman of the program committee, have issued a strong appeal to the profession to support the Association and to make the Duluth meeting a success. Dr. Willard Bartlett, of St. Louis; Drs. W. J. Mayo and L. G. Rowntree, of Rochester; Dr. C. N. Callander, of Fargo, N. D.; Dr. Theo. Bratrud, of Warren; and Dr. C. D. Lewis, of St. Cloud, will present papers. A boat ride to Isle Royal, a trip to the iron range, golf, etc., will be a part of the recreation offered by Duluth.

Dr. Gustave Golseth, of Jamestown, N. D., died on February 15 at the age of 47. Dr. Golseth was born in Minnesota, received a degree in liberal arts from the State University, and studied medicine in the Medical School, later taking his degree in medicine from the Loyola Medical College of Chicago in the class of '05. He began practice in Fergus Falls, and soon devoted himself to eye, ear, nose, and throat work, which he studied in London, Vienna, New York, and Chicago. He had practiced in Jamestown for fifteen years, and had been a member of the Stutsman County Clinic at Jamestown since its organization in 1921. He was a member of several national, state, and county medical societies. He was a highly respected man and physician. His work in Stutsman County Clinic will be taken over by Dr. Martin, as noted above.

#### SMALLPOX IN MINNESOTA

On January 7 a man came from Canada to Duluth and found work in a lumber camp near that city. On the 17th he was injured and was taken to a Duluth hospital and placed in the surgical ward. Not until five days later was it recognized that he had smallpox, and in this time a number of persons in the hospital were exposed to the disease. This man died of hemorrhagic (or black) smallpox; and within the usual incubation period cases were reported from several towns in St. Louis and one or two adjoining counties.

The State Board of Health and county and municipal officials at once took vigorous action, and a threatened epidemic of virulent smallpox was prevented. Duluth established five stations at which free vaccination was done, and in these clinics free vaccinations reached a thousand a day, and physicians did a large amount of work in their private practice.

Among the outstanding features of this outbreak were the number of deaths (fifteen); and the difficulty of tracing the origin of some of the cases or the mode of communication in others. Two undertakers died in Duluth from the disease, one of whom had buried a child who died of smallpox, and the other had had charge of the burial of the first undertaker.

None of those who died of the disease had been vaccinated in several years, and with two or three exceptions had not been vaccinated at all.

#### TENTATIVE PROGRAM FOR DRY CLINICS MINNEAPOLIS CLINIC WEEK

Tuesday, May 6, A. M.

DR. STEPHEN BAXTER. Retroperitoneal Tumors: Lantern-slide demonstration.

DR. MOSES BARRON. Present-day Treatment of Diabetes: Presentation of cases.

DR. J. P. SCHNEIDER. Demonstration of Ambulatory Types of Idiopathic Pernicious Anemia.

DR. F. C. RODDA. Acrodynia: Presentation of cases.

Tuesday, P. M.

DR. G. T. THOMAS. Preoperative Treatment for Hypertrophy of the Prostate: Demonstration of cases.

DR. JOHN BUTLER. Some of the Common Forms of Infectious Skin Diseases: Demonstration of cases.

DR. J. G. CROSS. Diseases of Pancreas and Diabetes: Demonstration of cases.

DRS. GEIST AND HENRY. Relation of Posture to Disease.

Wednesday, May 7, A. M.

DR. D. MCCARTHY. Case Illustrations of Results in Diabetes.

DR. STANLEY MAXEINER. Discussion and Demonstration of General Surgery; (Title to be announced.)

DR. R. T. LAVAKE. Toxemia of Pregnancy Signalized by Nausea and Vomiting.

DR. J. C. MICHAELS. Sequelæ of Head Injuries with Case Demonstration.

Wednesday, P. M.

DR. A. S. HAMILTON. Brain Tumors: Lantern-slide Demonstration, with case histories.

DR. N. O. PEARCE. Present-day Treatment of Diabetes in Children: Presentation of cases.

DR. WALTER CAMP. Intra-ocular Tumors: Demonstration.

DRS. WILCOX AND WHITE. Demonstration of Routine Treatment of Fractures and Standardized Equipment.



Thursday, May 8, P. M.

DR. R. E. FARR. Plastic Surgery of the Face: Demonstration of cases.

DR. J. D. LEWIS. Plastic Nasal Surgery; Demonstration and presentation of cases.

DR. J. F. CORBETT. Neurological Surgery: Demonstration.

DR. W. A. JONES. Dementia Precox: Posterior Spinal Paralysis.

Friday, May 9

DR. F. L. ADAIR. Pyelitis and Pregnancy: Value of Ruben's Test in Sterility.

DR. A. C. STRACHAUER. Surgery of the Stomach and Rectum: Presentation of cases.

DR. THEO. ANDERSON. Unusual Case Splenic Anemia-Splenectomy: Presentation of case.

DR. J. C. LITZENBERG. Tumors Complicating Pregnancy: Demonstration of cases.

Thursday and Friday mornings and until 2:00 P. M., surgical and medical clinics will be conducted at the various hospitals in Minneapolis, programs of which will be sent out at the earliest possible moment, or published in the next issue of THE JOURNAL-LANCET, May 1.

### Good Opening for a Physician

In a Minnesota City of over 8,000 population. Good hospital facilities. Address 81, care of this office.

### Temporary Work Wanted

By a competent physician licensed in Minnesota and North Dakota. Can give the best of references. Ten years experience; available at once. Address 79, care of this office.

### Fine South Dakota Practice for Sale

Unopposed practice of \$8,000 in town of 600 in rich farming country in Eastern South Dakota. \$2,000 for office outfit and introduction. Address 78, care of this office.

### Practice for Sale in Minnesota

In town of 5,000, county-seat. Railroad town. Only four other active physicians. For price of equipment only. Must act quickly. Reason for selling sickness. Scandinavian physician preferred. Address 83, care of this office.

### Physician Wanted

To take over a practice in a good South Dakota town in a large territory. Good man can earn \$10,000 a year. Excellent opportunity for a young man. No investment required. Give qualifications and references in first letter. Address 80, care of this office.

### Physician's Residence for Sale in St. Paul

The residence of the late Dr. von Cappellen, at 1659 East 7th St. (formerly Hazel Park), St. Paul, is for sale at a low figure and on easy terms. A general practitioner can quickly build up a good practice at this point, and it will grow rapidly. Address Mrs. Frieda von Cappellen at the above address.

### Physician Wanted

In a town of 800 population in southeastern part of North Dakota. A big territory and a prosperous country. Mostly all Germans with a few Hollanders around. Doctor must be able to speak German. Give reference in first letter. A very good opening for the right kind of a man. Address Nick Renner, Jr., Strasburg, N. D.

### Minneapolis Offices for Rent

Very desirable accommodation for a suburban physician wishing special office hours downtown. Choice of several rooms, whole or part time, in a building exclusively for physicians and dentists. Reception room nurse, laboratory technicians, etc., in attendance. Address 67, care of this office, or call at 821 Besse Building.

### Very Desirable Office in Minneapolis for Rent

An exceedingly desirable location, with a pleasant office with a dentist, is offered at 625 Plymouth Ave., over a drug-store, with a second drug-store nearby and under the same management to direct attention to both physician and dentist. Rent reasonable. Address or telephone Dr. A. A. Love (Dentist). Tel. Hyland 3036.

### Minnesota Practice for Sale

Will sell my practice as I am taking up special work. The practice is young yet, but without doing my own surgery I made over \$5,000 last year and collected 94 per cent. Practice ought to run \$7,000 or upwards next year on account of a new railroad being built into the town. Am anxious to close the deal at once. Address 76, care of this office.

### Physician's Office Equipment, Instruments, Etc., For Sale

Mrs. Christine Lund, of Hutchinson, Minn., offers for sale the complete office equipment of the late Dr. Theo. C. Lund, physician and surgeon, consisting of surgical instruments, scales, safe, desk (McCaskey's system), sterilizer, etc. Equipment in good condition. For information inquire of the Citizen's Bank of Hutchinson, Minn.

### Physician Wanted

Murdock, Minn., on the Great Northern R'y, wants a physician. The village is situated in a splendid and very prosperous farming section; crop failures unknown; the best of country roads; two banks; large creamery; two churches; a fine consolidated school doing grade and high school work. Physician in demand and work ready for him at once. Address E. C. Kiesling, Murdock.

### Assistantship Wanted

Assistantship to a good busy surgeon or general practitioner is wanted by a recent Rush graduate. Have had nine months work in emergency industrial surgery while at school and fifteen months of one of best internships. Can speak Norwegian, and am in very good health, capable, and willing to work hard. Am confident that I can satisfy as to character, personality, and ability. I desire a position with a good future in a thriving city. Address 77, care of this office.

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 9

MINNEAPOLIS, MAY 1, 1924

Per Copy, 10c  
A Year, \$2.00

## ANAPHYLAXIS: ITS PART IN THE DISEASES OF INFANCY AND CHILDHOOD

BY W. RAY SHANNON, M.D.

SAINT PAUL, MINNESOTA

No new conception in medicine since the development of the science of bacteriology has been of so momentous importance in the consideration of disease in man as that of the phenomenon of anaphylaxis and its relation to human illness. Since its first demonstration as a disease factor a few years ago a tremendous literature has accumulated, ever increasing in importance and in scope. It is the purpose of this paper to call attention to the tremendous part this phenomenon plays in human disease, particularly as applied to infants and children.

According to Besredka<sup>1</sup> our first real understanding of the phenomenon of anaphylaxis dates back to the work of Richet<sup>2</sup> in 1902. Working with actinocongestin, a substance of protein nature poisonous of itself, he found that the lethal dose in dogs was much smaller if a sublethal dose had been given some time previously. Following upon this work there appeared reports by Arthus,<sup>3</sup> von Pirquet, and Schick,<sup>4</sup> Otto,<sup>5</sup> Rosenau and Anderson,<sup>6</sup> Besredka,<sup>7</sup> and others establishing the fact that the toxicity of the second injection was a property peculiar to all proteins, and was not dependent upon the primary poisonous character of the substance used. It was further shown that the reaction was highly specific, and that, in order to obtain the toxic effects, the second dose must be of a protein identical with the first. Apparently the reaction could be produced in all of the laboratory animals, but was particularly well observed in the guinea-pig. A rapidly expanding literature established many new facts with regard

to the phenomenon and resulted in a variety of theories as to its explanation, which it is to no purpose to discuss here.

Our conception of this factor as a cause of disease in man dates perhaps from the work of von Pirquet and Schick,<sup>4</sup> in 1903, on serum disease. Dunbar,<sup>8</sup> however, in the same year seemed very close to an explanation of the etiology of hay fever on a similar basis. He showed that even the skin of hay-fever patients was sensitive to the pollens. However, it was a period of some eight or ten years later before the conception of this disease being due to anaphylaxis was gradually acquired.<sup>9</sup> Meltzer,<sup>10</sup> in 1910, first advanced the theory that asthma was an anaphylactic phenomenon. Schloss,<sup>11</sup> in 1912, demonstrated beyond a doubt a similar origin for a case of urticaria. Since these early papers numerous investigators have confirmed the opinions of the early writers and have included many other obscure conditions under the same etiological category. Simpson,<sup>12</sup> as early as 1912, hinted that protein sensitization might play a part in the etiology of infantile eczema. This has been entirely supported by later works. Talbot<sup>13</sup> has shown that recurrent bronchitis in children may be due to a similar cause. Pisek and Pease<sup>14</sup> regard certain cases of convulsions seen in babies of eclamptic mothers after the first copious nursing as anaphylactic in origin. Schloss<sup>15</sup> has seen hyperacute symptoms accompanied by urticaria, angioneurotic edema, asthma, and shock; bronchial asthma, erythema multiforme, eczema, acute dermatitis, gastro-enteric disturbances, and



gioneurotic edema, and cyclic disturbances occur in infants and children from a similar cause. Duke<sup>16</sup> has called attention to this factor as a cause of abdominal pain of obscure nature, and more recently has shown its etiological significance in bladder irritability.<sup>17</sup>

A great many of the disturbances mentioned are particularly common in infants and children, and at this early age food proteins play by far the most important part. Since 1905 infants and children exhibiting these symptoms have been particularly familiar to the pediatric profession through the work of Czerny.<sup>18</sup> As a result of the work of this investigator they have come to be classed together into a type which he termed the exudative diathesis. A wholly natural inference would seem to have been that the manifestations of the exudative diathesis were of anaphylactic origin. One big objection to such a theory lay in the fact that the exudative diathesis is particularly common in breast-fed infants whom, it was assumed, it was impossible for a variety of food factors to affect since the protein of the breast milk was thought to be qualitatively uniform. However, in the latter part of 1920 O'Keefe<sup>19</sup> published some observations on eczema in breast-fed infants as a result of which he questioned this generally held opinion, and suggested that food proteins from the mother's dietary might appear in the breast milk and cause eczema in the baby.\*

Early in the following year I was able to demonstrate both experimentally on animals and clinically that egg protein did not infrequently appear in the breast milk after its ingestion by nursing mothers, and that it was often responsible for anaphylactic disturbances in the baby.<sup>20</sup> In a series of later papers strong clinical evidence was presented that the same might be true of any food that the mother might eat.<sup>21</sup> It was further shown that these proteins might be responsible for eczema, repeated colds, colic, vomiting, diarrhea, and milk crust, practically all of the manifestations of the exudative diathesis in breast-fed infants. In another report, as yet unpublished, it is shown that it has been possible to produce, and to cure at will, some of the important symptoms of this condition in a breast-fed baby by the addition to, or the elimination from its diet of the foods to which skin tests had revealed sensitization.

\*Harold C. Stuart has recently failed to confirm these findings and questions very forcibly the validity of these contentions. See Stuart, Harold C., "The Excretion of Foreign Protein in Human Milk." *Am. Jour. Dis. Child.*, February 1923, vol. 25; N. S., p. 135.

Thus the validity of the theory of an anaphylactic origin for the symptoms of the exudative diathesis would seem assured. However, before its plausibility can be entirely established it becomes necessary to explain several well-known clinical facts and to correlate them with an underlying protein sensitization: First, many exudative infants get well without treatment, all dietary and other environmental factors apparently remaining the same. Second, simple over-feeding and especially high-fat feeding can, without question, bring on or aggravate the symptoms in many cases. Third, local irritation, whether specific or non-specific in nature, is frequently responsible for attacks.

Of the first consideration several explanations are tenable: First, the diet may be changed unconsciously so as to eliminate or reduce in amount the offending protein. Second, the digestive powers of the individual may improve so that the protein responsible may be completely broken down before it is absorbed. Third, and I presume that this is what usually occurs, a state of immunity, or, more properly, of desensitization, may be brought about as a result of the repeated introduction of the offending protein.

It is not my purpose to discuss fully the second point at the present time. It is sufficient to say that obviously the mere ingestion of a protein to which an individual is sensitized is not an introduction into the body. Such a protein must be absorbed in an undigested state. Anything, therefore, which would facilitate absorption before digestion was complete would indirectly increase anaphylactic manifestations, and this, I believe, is the part played by improper feeding.

It is with the third point, the relationship of local irritation, whether specific or non-specific, to the disease picture that I wish to deal particularly at the present time. I have already called attention to the fact that a state of anaphylaxis causes the tissues of an individual to be unusually sensitive to irritation of a local nature.<sup>22</sup> This conception was based upon the experimental work of Auer.<sup>23</sup> He showed that irritation of a rabbit's ear with xylol shortly after a shock dose of horse serum had been given to a sensitized animal resulted in an intensified reaction at the site of the irritant as compared with normal animals or those sensitized but not given the shock dose. The conditions existing in his experimental animals are quite comparable to those occurring in infants showing the manifestations of exudative diathesis. They are con-

stantly anaphylactic due to the ingestion of or other contact with the proteins to which they are sensitive. Therefore, various types of focal irritants give rise to magnified reactions. Similarly, irritation which will not be perceptible in a normal individual may be sufficient to bring about a reaction in an individual of this type.

Auer explained the results that he obtained on the basis of a localized anaphylactic reaction. The rabbit, at the time of the application of the xylol, had present in his blood stream the antigen, or horse serum. As a result of the congestion caused by the irritant this antigen was concentrated in the tissues at this point, and as a sequel to this concentration a localized anaphylactic reaction took place which augmented, or rather completely eclipsed, the primary reaction due to the xylol. Applied to the exudative child local irritation causes congestion with resultant concentration of the antigen, usually a food protein, and localized anaphylactic manifestations result giving rise to eczema, if the site of irritation is the skin, to the ordinary signs of a common cold if it be the upper respiratory mucous membrane, or to bronchitis or asthma if it is the lower respiratory tract. Such an interpretation would seem to be made more plausible by the recent work of Manwaring and others,<sup>24</sup> which has demonstrated an increased capillary permeability in anaphylaxis. It is altogether possible that a "variation of the height of the threshold of sensitivity in the various tissues of a given individual," as has recently been contended by O'Keefe,<sup>25</sup> does play a part in determining at what site the preponderance of anaphylactic response to a given irritation shall occur.

Thus it would seem that these major objections are not only not refutatory of the anaphylactic theory, but that they are really supportive of such an hypothesis in that an assumed anaphylactic basis permits of a perfectly logical explanation of such apparently widely divergent facts. The foregoing being true I have presumed to assume that the symptoms of the exudative diathesis are always dependent upon an underlying anaphylactic condition and that the more obvious apparent causes, such as overfeeding, especially with fat, and local irritation, such as hard water, poor soap, heat, moisture, dust, smoke, etc., are in reality but contributory factors whose apparent profound effects would go unnoticed but for the presence of the anaphylactic state.

#### CASE REPORTS

CASE 1.—Baby boy, two and one half months old, had had colic since birth. Lately the baby had begun to show a skin rash over the face, scalp, and diaper region. Physically it was normal but for a papular scaling eczema over the cheeks, forehead, and chin, and a similar eruption over the diaper region. Ordinary measures for the colic were prescribed, and local treatment in the form of Lassar's paste and the use of olive oil was ordered for the rash. No water was to be used. The mother was cautioned to eat a larger variety of foods since her diet had been rather limited. Six days later the mother returned with the baby showing a terrific acute eczema over the entire body. The colic had been extreme. Skin tests were then made, even though it was necessary to perform them over areas covered with abundant acute eczematous rash. Though such reactions were difficult of interpretation, the foods giving the most pronounced reactions were eliminated from or limited in the mother's diet. Local measures were continued as before. Four days later when the mother again returned all of the acute nature of the eruption had disappeared. Desquamation, however, was still present over the entire body, being especially abundant over the face, head, and diaper regions. All colic had disappeared, and the infant was sleeping all night. This improvement continued, the skin returned promptly to normal, and remained so for a period of four weeks. At this time the baby was taken to a welfare clinic because of vomiting, and the physician in charge prescribed thick cereal feeding in the form of Cream of Wheat. There was an immediate return of the eczema. Wheat had been one of the foods which had been limited in the mother's diet at the time of the food tests.

A food sensitization could hardly be denied as a cause of the symptoms in this case. The relatively mild eczema seen at the first visit flared up tremendously when a purely empirical change in the diet of the mother was advised, even though local measures were prescribed directed at reducing the amount of local irritation. The protein study revealed the very interesting fact that as a result of the advice to eat large variety of foods the mother had been eating a considerable quantity of cantaloupe and banana. The skin tests were unmistakably positive to each of these foods. It might be argued that, possibly, the local measures prescribed were responsible for the increase in the symptoms, since it is well known that olive oil seems to be bad for some cases. However, these same measures were continued after the diet was ordered and during the period of improvement. Furthermore, the colic and sleeplessness entirely disappeared within the first four days after the offending foods were restricted. It will be noticed that this exudative manifestation had been present since birth. There seems to be no room for question but that



the presence of the exudative symptoms was dependent fundamentally upon the presence of a sensitization in the baby to the foods of the mother's dietary coming to the baby through the breast milk. Still further support for this assumption is to be found in the fact that the eczema returned upon the addition of the wheat cereal to the infant's diet four weeks after its disappearance.

CASE 2.—Baby boy thirteen months old having a definite history of the exudative diathesis in the form of several asthmatic attacks, moderate eczema, and occasional attacks of urticaria, was brought in by the mother especially because of an extreme tendency to colds. He had a constant rattle in the throat and was never able to stand before an open door without a head cold resulting. This was always accompanied by cough. When seen he had a definite rhinopharyngitis and bronchitis. Cutaneous tests were made, and a number of positive reactions obtained. These foods were eliminated from or limited in his diet. Twelve days later the mother reported considerable improvement. Heard from after a period of two months more he had been extremely well and free from colds until three days previously when there had been a return of the nasopharyngitis accompanied by bronchitis. For several days previous to this attack the baby had been under the care of a practical nurse who had been feeding the restricted foods.

In this case the sequence of events is very striking. An infant with a definite exudative history was seen because of constant colds. Limitation of diet based upon cutaneous protein tests resulted in prompt cessation of his complaints. During this period of restricted diet the mother commented on how the patient was able to stand exposure to draughts and to the winter air without any sign of a cold, which had always followed before, resulting. After a period of two months the discontinuance of the dietary restrictions was followed very shortly by a return of the old complaint. Interpreted on the basis of the theories presented in this paper the constant anaphylactic state due to the ingestion of the offending foods made this patient's tissues hypersensitive. As a result, exposure to cold air caused congestion of the respiratory mucous membranes with resultant concentration of the antigen. This, in turn, gave rise to a localized anaphylactic reaction manifesting itself in the ordinary signs of a common cold, or of a bronchitis, or of asthma. To be sure it is not necessarily true that the rhinopharyngitis and bronchitis from which this patient constantly suffered were entirely anaphylactic in nature. It is almost certain that infection also played a part, this having supervened as a consequence of the lowered resistance resulting from the local-

ized anaphylactic response to the primary irritant, in this case cold air. However, the more important factor in the causation of the difficulties was the constant anaphylactic state of the individual as shown by the freedom from attacks during the period of restricted diet when the patient's tissues were free of the offending antigens.

This case illustrates a very important point in Czerny's observations on the exudative child.<sup>18</sup> He discouraged very forcefully the removal of tonsils and adenoids in this class of cases with the hope of acquiring freedom from colds. He recognized that this tendency to repeated upper respiratory infections was something more fundamental than disease in the nose and throat, and he rather stressed the importance of freeing the patient from local respiratory irritants, such as smoke, dust, and cold and damp air, a freedom such as would be acquired in the removal from a city to a country environment. Thus an underlying anaphylactic condition would seem to satisfactorily explain these facts which Czerny recognized and emphasized.

Very closely associated clinically with the exudative diathesis is the so-called neuropathic diathesis. While Czerny considered this relationship purely accidental its very frequent occurrence is suggestive of some causal association. Such an hypothesis is supported by a variety of experimental and clinical facts. In the anaphylactic animal the extreme nervous irritability, the sneezing, the scratching of the muzzle, the sudden hopping movements so typically spasmodic in character, and finally the convulsions themselves are abundant evidence of the irritative action produced upon the nervous system by the anaphylactic poison. A similar affection of the nervous system in man is indicated by the fact the drugs used to relieve the anaphylactic manifestations are notably drugs that exert their effects upon the nervous system, and by the fact that nervous symptoms so frequently accompany outbreaks of such disorders. In fact Hoobler,<sup>20</sup> in 1916, attributed the extreme nervous irritability, restlessness, sleeplessness, and fretfulness seen in some infants to an anaphylactic origin. Would it not be surprising then if the exudative diathesis were not frequently accompanied by marked evidences of nervous irritation? Is it, therefore, not a reasonable assumption that this association is something more than a mere accident, that it is causal, that the symptoms of both conditions are dependent upon the same underlying cause? Such

has actually been shown to be the case.<sup>27</sup> An underlying anaphylactic state is responsible for many of the symptoms of the so-called neuro-pathic diathesis in infants and children and the association of this symptom complex with that of the exudative diathesis is in reality the result of an identical underlying cause.

CASE 3.—Baby girl was breast fed for two months and after that given modified milk formulæ. At the age of five months Cream of Wheat was added to her diet. About one week later it was noticed that she was extremely nervous. She cried constantly, turned and twisted in her crib incessantly, and slept but little in the twenty-four hours. The hands and arms were in constant motion, and there were jerky movements of the entire trunk. Physical examination was negative except for a definite undernutrition, and the nervousness was attributed to her questionable heritage, the mother being unmarried and having been sent to an institution for the feeble-minded when the patient was two months of age. Bromides were therefore prescribed, and these seemed to afford prompt relief. They were shortly discontinued, whereupon the patient at once reverted to her former condition. Again bromides were given with good results for about three months, at the end of which time they had lost their effect, the patient having returned to her original condition. She was then tested with the foods of her dietary, and positive erythematous reactions were obtained to wheat, leucosin, globulin, and proteose. All other tests were wholly negative. Wheat cereal was eliminated from the diet, and oatmeal substituted. In one week there was a remarkable change in her disposition, which was noticed by all who came into contact with her. She slept all night, and was playful and happy during the daytime. The constant turning and twisting and the chewing of her hands, which had been so marked before, had entirely disappeared. She had gained seven and one-half ounces during a period of four days. At the end of this time Cream of Wheat was again added to her diet. Within twelve hours the nurse in charge said that she noticed a beginning return of the old irritability. She was restless all the next day and slept poorly that night. The next day, forty-eight hours after the wheat was added, she had reverted to her original nervous state, turning, twisting, and crying all day long. That night she slept practically none at all. Cream of Wheat was then again eliminated from her diet, and oatmeal substituted. Improvement again was prompt, so that by the end of five days she was happy and playful, sleeping well at night, as she did during the first experimental period. The patient remained a happy and contented baby, developing and gaining very rapidly for the several months that she was under my care.

This case is unusually valuable because the simplicity of the patient's diet permitted rather an accurate experimental procedure. It is valuable also because of the heredity, for here was a patient in whom if we might ever expect

abnormalities of the nervous system on a basis of inheritance we might look for it here. Environmental factors could be minimized since they were identical throughout the entire period of observation. The very striking results reported were thus obtained in the presence of no other possible variable factor than that of the wheat in the diet of the patient. It is therefore evident that the very marked nervous irritability noted in this patient was due to an anaphylactic reaction to the wheat protein coming to the patient through her diet. It is further an interesting fact that this patient had never shown any of the ordinary symptoms of the exudative diathesis.

CASE 4.—A boy, nine years of age, suffering from extreme nervousness and attacks of vomiting. The latter came on about once monthly. Usually he would vomit, but once, but he was always indisposed for several days thereafter. Between attacks he was irritable, slept poorly, and was very finicky about what he ate. For the past two weeks he had been constantly ill, vomiting about every third day, would eat almost nothing between attacks, and was extremely irritable. The physical examination being negative except for the presence of a nasal sinus infection for which he had been under treatment for some time, and a rather definite undernutrition it was thought that the etiological factor might be a sensitization to some of the foods of his dietary. Protein tests were therefore carried out and several positive reactions obtained. Elimination from or limitation in his diet of these foods resulted in immediate improvement. There were no more vomiting spells, and his appetite became ravenous. The nervous irritability ceased in a short time. He began to sleep all night and to awaken refreshed, something that he had not done before. During the following month his class standing rose from thirteenth, where it had been for five months past, to eighth without any conscious effort on his part. This improvement had continued when last heard from several months after the diet had been instituted.

In this case, as in the preceding, a history of anaphylactic manifestations of the ordinary type was lacking. This was also true of the immediate family history, the only suggestive thing being that a sister had had similar vomiting attacks during a period of her life. The remote family history revealed the facts that one cousin could not eat eggs because they poisoned her, and that the paternal grandfather had had attacks of difficult breathing in his old age apparently resembling asthmatic attacks. It is conceivable that the chronic nasal-sinus infection for which the boy had been treated might be responsible. Such a supposition seems to be ruled out by the facts that the treatment of the sinus had resulted in



no improvement in the general complaint up to the time the diet was instituted and that the sinus condition continued after the diet was prescribed without causing the continuation of the general disturbance. Extremely interesting, although wholly to be expected, is the fact that the patient's school standing improved to a marked degree.

If anaphylaxis can and does give rise to nervousness as a result of a constant irritation of the nervous system, would it not be surprising if in some cases rather marked irregularities of nervous function might not result? It would seem that in the opinion of some writers this does actually occur. Pisek and Pease<sup>4</sup> regard certain types of fatal convulsions seen in the babies of eclamptic mothers after the first copious nursing as of anaphylactic origin. I have seen a somewhat comparable case in the baby of a non-eclamptic mother in which recovery occurred. In this infant a convulsion occurred immediately after an abundant nursing on the third day. The convulsion had ceased by the time I arrived, but there had already appeared an abundant urticarial rash over the entire body, which was followed by a severe diarrhea, both of which conditions are known to be frequently of anaphylactic origin. Removal from the breast for a few feedings and substitution of modified cow's milk resulted in prompt return to normal, and there was no recurrence when the infant was again allowed to nurse. Ward<sup>28</sup> has definitely traced some cases of epilepsy to anaphylactic reactions to foods contained in the dietary of the patients. Thus it would seem that the field of functional nervous diseases might be fertile territory for further investigation from the standpoint of anaphylaxis as a cause.

It is a well-recognized fact that individuals of the exudative type are particularly subject to infection. In fact it is almost the rule for such children to be unusually susceptible to colds and to bronchitis. The poor resistance of the obese lymphatic type has been unforgetably impressed upon our consciousness. If our reasoning is sound this is precisely what we should expect. The increased sensitivity of the tissues due to the constant anaphylactic state should not only augment the reaction due to an infection, but should lower local resistance, making it easier for infecting organisms to gain access into the body. Such theory has been well borne out in personal experience. A surprisingly large percentage of my severe cases of infectious disease, as well as of the most persistent instances

of minor infections, have occurred in patients with either personal or familial anaphylactic tendencies. Furthermore the not infrequent occurrence of sudden death in the lymphatic individual, which has recently been held to be anaphylactic in nature,<sup>29</sup> emphasizes still more the anaphylactic tendencies of this type.

If such a conception be correct it should be possible to decrease the tendencies of the anaphylactic individual to infections by the removal from contact with proteins to which he is sensitive. This is common experience in this type of case. Especially is it true with regard to infections of the upper respiratory tract. Observations such as those recorded in Case 2 are frequently made.

CASE 5.—A boy nine years old was brought in complaining of a persistent cold, which had been present for a month. He gave a history of constant head colds and bronchitis every winter, beginning in the fall and persisting until the warm spring weather had come. The mother brought him in about one month after the cold fall weather had started with the hope that removal of tonsils would afford him relief. It was decided to delay tonsillectomy until after a diet had been tried. Protein tests were therefore performed, and a number of positive reactions were obtained. Elimination or limitation of these foods in the patient's diet resulted in no improvement for about three weeks; but at the end of this time all symptoms rather suddenly disappeared, and the boy went through the rest of the winter and through a damp disagreeable spring without a return of his complaint. When last heard from he had moved to a large city and was still free from his tendency to colds.

This case also emphasizes the importance of Czerny's contention that something more fundamental than infection in the tonsils and adenoids is frequently responsible for the tendency to repeated respiratory infections in this class of cases. There is reason to believe that such an operation would have been unsatisfactory in this case. However, freedom from contact with offending proteins resulted in relief which proved to be permanent over at least several months while the patient was under observation. The long interval of time after the diet was instituted before the colds disappeared is probably explained by the fact that it took three weeks for the patient to overcome the infection which had already been established.

CASE 6.—A girl six years old was seen one year ago because of a more or less constant pyuria, extreme tendency to colds, and vomiting attacks. The mother had known of the presence of the pyuria for several years past and had kept the patient under the care of a pediatrician all of this time. The vomiting attacks had apparently accompanied flare-

ups in the pyuria and had occurred as often as once monthly. Between these attacks the patient was very subject to colds and seemed to be almost constantly ill. Three months previously the tonsils and adenoids had been removed with no effect upon the symptoms. When first seen the patient was suffering from a typical exacerbation of the pyuria accompanied by fever and vomiting. Ordinary treatment was instituted and as soon as the patient's condition permitted she was brought to the office for protein study. Those proteins giving a positive reaction were eliminated from her diet. Since that time the patient has been perfectly well. There have been no more vomiting attacks, she has had only two slight colds during the winter, and the pyuria has been absent entirely. Only once during the entire year has it been necessary for her to be seen by a physician, and this was for an attack of measles of moderate severity. There was no return of the pyuria even following this illness.

This patient had been what almost amounted to a chronic invalid over a period of about four years. This was true in spite of constant medical attention. The removal of her tonsils and adenoids had failed to give relief. Elimination of the anaphylactic state by the correction of her diet in accordance with cutaneous protein tests resulted in a prompt cessation of symptoms which has been permanent over a period of one year.

A proper understanding of the various disease conditions encountered in the human dependent upon a fundamental basis of protein sensitization demands an appreciation of the frequent existence of two factors; first, a predisposing wholly specific factor which is anaphylactic in nature; and, second, a precipitating factor which may or may not be specific. The possible number of predisposing factors is as great as the number of different kinds of proteins with which the individual may come into contact. In infancy foods play the most important part, but as age advances other proteins, such as those of animal emanations, bacteria, pollens, etc., assume an increasing importance. It is my belief that substances to which skin tests may reveal but slight sensitization may play a part in a given disease picture by increasing the irritability of the tissues and thereby enhancing the effects of other irritants.

Of the precipitating factors even a larger variety is possible, for here we must include all types of non-specific irritation, such as dust, cold or damp air, irritating clothing, hard water, poor soap, infections, and even excessive aëration, as in case of over exertion. This factor may be specific in nature, that is a protein to which the individual has become sensitized. This is very frequently true in the cases of seasonal

asthma associated with hay fever, in which the irritant action of the pollen on the respiratory mucous membrane is frequently made greater because of the presence of a predisposing factor in the nature of a food anaphylaxis. It is possible that this fact is responsible for many of the failures in treatment in this class of cases, efforts being directed only at the precipitating factors, and the very important predisposing factors being totally disregarded. Here as in the case of the predisposing factor a mild cutaneous reaction may be very significant in that slight as the sensitization may be it may still be great enough to transform that particular protein into an irritant sufficiently great to precipitate an attack in the presence of a predisposing anaphylactic state.

CASE 7.—A boy six years old was sensitive to ragweed and to foods he was eating the year around. Ordinarily he presented no symptoms except during the hay-fever season, during which time he suffered from a severe asthma, as well as hay fever. He was studied during the winter time when he was having no symptoms. Dietary restrictions were not prescribed but the mother was warned to keep him away from any form of respiratory irritant, dust especially being mentioned. Several days later the patient helped a friend sweep out his basement. That night he suffered from a typical attack of asthma.

In this case the underlying anaphylactic condition did not produce difficulty alone. However, it remained as a latent cause of symptoms to be brought into action by local irritation on the respiratory mucous membrane. The local irritant during the pollen season was specific in nature, ragweed pollen, to which the patient was sensitive. While the influence of the food sensitization on the disease picture during this season is not demonstrable, beyond question it is a reasonable assumption that it contributed to the very severe nature of the symptoms at this time. During the winter time the local irritant was non-specific. Nevertheless the symptoms produced in the patient were typically asthmatic in nature and identical with those produced during the ragweed season by the ragweed pollen. It would seem clear that here the apparent tremendous effect of the dust was in reality a protein reaction due to food protein which was precipitated in the respiratory tract because of irritation produced in that area by non-specific irritant.

CASE 8.—A girl eight years old had been suffering from asthma for five years. At first attacks came on about once monthly, but of late they had been appearing weekly and were very severe in character. The parents had noticed especially that effort would bring them on, as when she ran and played unusually hard. Protein tests revealed positive erythematous



reactions to a variety of foods, to goose feathers, and to dog hair. Two foods only, beef and spinach, gave very slightly raised areas around the scratch mark, and nothing more resembling a wheal was obtained in any test. Elimination of the offending foods from her diet and removal from contact with goose feathers and dogs, resulted in an immediate cessation of attacks. This freedom has obtained up to the present time, over a period of more than six months, with the exception of one attack two weeks ago. The mother confessed that she had been feeding the offending foods for some time because the patient had been so well. Nothing resulted until the time above mentioned. This day the patient had been playing unusually hard, jumping rope with her playmates, and this effort was followed by a single asthmatic attack.

The importance of the underlying food anaphylaxis as a predisposing cause and of the non-specific local irritant as a precipitating cause is well illustrated in this case. The patient went through the entire winter without a single attack. Her unusual state of good health led the mother to be somewhat lax in the dietary supervision, and, noticing no untoward effects, led to greater carelessness. So far as outward signs were concerned these forbidden foods did not produce trouble. Nevertheless, a predisposing anaphylactic state was induced which needed only the added influence of some local precipitating cause to bring on an asthmatic attack. This was supplied in the form of a non-specific irritation of the bronchial mucosa resulting from rapid breathing accompanying severe physical effort, and a typical return of the old complaint resulted.

CASE 9.—A girl five years old was suffering from severe eczema more or less constantly, and from rather frequent attacks of asthma and angioneurotic edema. Protein study revealed an extremely widespread sensitization to foods as well as to duck feathers and cat hair. Management based upon this study was extremely difficult, it being impossible to any more than limit in amount the offending foods. Nevertheless, there was considerable improvement in the eczema until one night, due to illness of the mother, the father was obliged to care for the child. He gave her a duck-feather pillow to sleep on and by morning her face "looked like a beefsteak."

Here a specific local irritant precipitated an anaphylactic disturbance on the skin in the form of an acute eczema. Had it been possible to eliminate all dietary factors producing a predisposing anaphylactic state we might still have obtained a similar reaction to the duck-feather pillow. However, it is probable that the effect would have been much less marked. Interesting is the fact that the reaction to duck feathers consisted only of an erythema.

The persistence and chronicity of the types

of disorders mentioned are well-known clinical facts. The explanation is found in the widespread sensitization which so often exists. Success in the treatment depends, therefore, first upon the ability to recognize the offending proteins. The usual cutaneous test as performed by Walker<sup>30</sup> seems to be very satisfactory for their recognition. However, if one is to accept only a wheal as a positive reaction, results will not be satisfactory. It is highly important that an erythema at the site of the test be also considered as an indication of sensitization. It is altogether possible that in interpreting on this basis some false deductions are made, nevertheless it is better from the standpoint of the patient to err on this side than to fail to recognize some of the offending agents. This is well illustrated in Case 8. Not one of the reactions obtained met the requirements of the standard so widely laid down, namely, of a wheal 0.5 cm. in diameter; and, furthermore, neither of the two slightly raised reactions showed any pseudopod-like projections. In spite of this the patient was afforded complete relief from symptoms when she was freed from contact with the proteins giving these erythematous reactions. Furthermore, symptoms again recurred when this contact was again allowed to occur.

Emphasis must be laid upon the necessity for a complete protein study. The frequency with which widespread sensitization is encountered makes it necessary that the largest possible variety of proteins be used. Proper recognition of the relative importance of predisposing and precipitating factors will emphasize the necessity of always considering the food proteins even where it is quite obvious that other types of antigens, such as the pollens or animal emanations, are the immediate precipitating cause.

It must not be forgotten that there are unavoidable errors in the performance of the cutaneous tests. Walker<sup>31</sup> mentions the fact that a negative reaction may be obtained with an offending protein after a long period of freedom from contact, and that this protein may still give rise to symptoms when contact is again established. Schloss<sup>15</sup> has shown also that the cutaneous reaction may become negative to food proteins after the ingestion of a sufficiently large amount of the food to produce a severe reaction, apparently a true desensitization which is not permanent. Then too O'Keefe<sup>25</sup> has recently reported the occurrence of positive sensitization to milk in infants as shown by the clinical results with repeatedly negative cutaneous tests. It may

thus become necessary to repeat the protein study, especially in infants in whom new sensitizations are so easily acquired.

Success in the treatment depends, secondly, upon the ability to eliminate contact with the proteins to which sensitization exists. In certain cases this is impossible; however, it is always possible to diminish such contact, and not infrequently this is sufficient to give satisfactory therapeutic results. Here especially is it important to consider both predisposing and precipitating factors, for very often both factors are necessary to bring on symptoms. Elimination then of one or the other will give relief; and, if elimination of one can be combined with a reduction in the other, a great deal of hope can be offered of complete cure.

A third element in the success of treatment is the ability to bring about a state of desensitization. This may be brought about either by the injection or feeding of graduated amounts of the offending proteins. The experience of others would seem to offer great possibilities of success, at least, in certain types of sensitization. In my own experience it has seemed somewhat impractical and unnecessary except in cases of pollen sensitization, and here results have been most gratifying.

I know of no field offering such possibilities for successful treatment and for obtaining gratifying results as that of protein sensitization. The wide range of affections fundamentally dependent upon this cause gives many opportunities for a complete transformation in the general state of health of many individuals. The association of malnutrition and a sickly constitution with any one or a combination of the anaphylactic disturbances mentioned is extremely common, and it is, indeed, surprising what a revolution in the health tendencies is frequently observed upon institution of treatment directed at an underlying protein sensitization. It seems that the key to the entire health problem in many children is acquired with the solving of their anaphylactic disturbances.

#### SUMMARY

The following is offered as a conception of the part of anaphylaxis in the diseases of man, especially as applied to infants and children: that it is extremely common; that it frequently is directly responsible for a great variety of skin, respiratory, gastro-intestinal, nervous, and even genito-urinary disturbances; that it is not infrequently a hidden predisposing factor which makes it possible for more obvious specific or

non-specific factors to precipitate, and therefore to be apparently responsible for, such attacks; that it is the underlying mechanism upon which the symptoms of the exudative diathesis depend; that it is oftentimes responsible for many of the symptoms of the neuropathic diathesis; that by long-continued action it may give rise to many of the so-called functional nervous disturbances, even of grave character; that it not infrequently predisposes to infectious conditions through its tendency to increase the irritability of the body tissues; and that through any one or combination of these agencies it may produce marked disturbances of nutrition and of health. It is secondary only to the bacterial factor as a cause of disease in man. In fact it contributes in no small degree to the importance to bacterial disease for it helps prepare the soil from which that greatest enemy of mankind reaps so rich a harvest.

#### BIBLIOGRAPHY

1. Besredka: *Anaphylaxis and Anti-anaphylaxis*. C. V. Mosby Co., St. Louis, 1919.
2. Richet: *L'anaphylaxie*, p. 3, ed. F. Alcan. (Quoted from Besredka.)
3. Arthus: *Comptes rend. Soc. de Biol.*, 1903, lv., p. 817. (Quoted from Besredka.)
4. v. Pirquet and Schick: *Wiener Klin. Wochenschr.*, 1903, xvi, 758, 1244.
5. Otto: *Das Theobold Smithsche Phaenomen d. Serum-Überempfindlichkeit*. Berlin, 1906, i, 153-172. (Quoted from Besredka.)
6. Rosenau and Anderson: A study of the Cause of Sudan Death Following the Injection of Horse Serum. *Bulletin No. 29, Lab. of Hygiene, Wash.*, April, 1906.
7. Besredka and Steinhardt: *Annales de l'Institut Pasteur*, 1907, xxi, pp. 117 and 384. (Quoted from Besredka.)
8. Dunbar: *Zur Frage betreffend die Aetiologie und spezifische Therapie des Heufiebers*. Berlin Klin. Wochenschr., 1903, ix, 537, 569, 596. English translation of the same. *Annals Otol., Rhinol., and Laryngol.*, 1903, vol. 12, p. 487.
9. Smith, Theobold: *The Etiology of Hay Fever*. Bost. Med. Surg. Jour., 1913, vol. clxviii, No. 14, p. 504.
10. Meltzer: *Bronchial Asthma as a Phenomenon of Anaphylaxis*. *Jour. of the A. M. A.*, 1910, vol. 55, p. 1021.
11. Schloss: A Case of Allergy to Common Foods. *Am. Jour. Dis. Child.*, 1912, vol. 3, p. 341.
12. Simpson: *Infantile Eczema*. *Jour. of the A. M. A.*, 1912, vol. 58, p. 995.
13. Talbot: *Relation of Food Idiosyncracies to Diseases of Children*. Bost. Med. Surg. Jour., 179, p. 285.
14. Pisek and Pease: *Anaphylaxis*. *Pediatrics*, 23, p. 552.
15. Schloss: *Allergy in Infants and Children*. *Am. Jour. Dis. Child.*, 1920, vol. 19, p. 433.
16. Duke: *Food Allergy as a Cause of Abdominal Pain*. *Arch. Int. Med.*, 1921, vol. 28, p. 151.
17. Duke: *Food Allergy as a Cause of Irritable Bladder*. *N. Y. Med. Jour.*, 1922, vol. 116, p. 505.
18. Czerny: *Die Exsud. Diath. Jahrb. f. Kinderheilk.*, 1905, vol. 61, p. 199.
19. O'Keefe: *Relation of Food to Infantile Eczema*. Bost. Med. Surg. Jour., 1920, vol. 187, p. 569.
20. Shannon: *Demonstration of Food Proteins in Human Breast Milk, Etc.* *Am. Jour. Dis. Child.*, 1921, vol. 22, p. 223.
21. Shannon: *Anaphylaxis to Food Proteins, Etc.* *Minn. Med.*, 1922, vol. v, p. 137. *Colic in Breast Fed Infants, Etc.* *Arch. of Ped.*, 1921, vol. 38, p. 756. *Eczema in Breast Fed, Etc.* *Am. Jour. Dis. Child.*, 1922, vol. 23, p. 392.
22. Shannon: *Non-specific Irritation, Etc.* *Minn. Med.*, 1923, vol. vi, p. 154.
23. Amer. Jour. Exp. Med., 1920, vol. 32, p. 427.
24. Manwaring, Chilcote and Hespan: *Jour. of the A. M. A.*, 1923, vol. 80, p. 303.
25. O'Keefe: *Jour. of the A. M. A.*, 1923, vol. 80, p. 1120.
26. Hoobler: *Am. Jour. Dis. Child.*, 1916, vol. 12, p. 129.
27. Shannon: *Am. Jour. Dis. Child.*, 1922, vol. 24, p. 89.
28. Ward: *N. Y. Med. Jour.*, 1922, vol. 115, p. 592.
29. Symmers: *Am. Jour. Dis. Child.*, 1917, vol. 14, p. 463. (Quoted from Kohlbr.)
30. Walker: *Oxford Medicine*, 1920, vol. 2, p. 121.
31. Walker: *Ibid.*, p. 122.



## SUBCUTANEOUS INJURIES OF THE NORMAL SPLEEN\*

BY THEODOR BRATRUD, B.A., M.D., F.A.C.S.

WARREN, MINNESOTA

The spleen is frequently injured from falls or blows upon the abdomen. The degree of force causing a tear or rupture of the spleen varies with the direction in which the force is applied. If the spleen is compressed against the spinal column, as evidently happened in one of our cases, the amount of force applied is very small. The patient referred to was walking along the street and fell over a fire-hose. Four hours later, three fissures were found near the hilus of the spleen, bleeding profusely.

The symptoms of splenic injury are those of internal hemorrhage. Many writers on this subject (Willis<sup>1</sup> and Levi<sup>2</sup>) describe a pain referred to the left upper abdomen and to the left scapula as characteristic of this injury. The symptoms may appear early and are threatening. Berger<sup>3</sup> reports that 51.8 per cent of splenic injuries are fatal within the first hour. In some cases the onset of symptoms is gradual. Deaver<sup>4</sup> suggests that when the onset is delayed it is probable that there is a subcapsular rupture with a subcapsular hematoma gradually increasing in size until the capsule is ruptured and then free hemorrhage takes place into the abdominal cavity.

Agnew<sup>5</sup> describes splenic injury as fatal in a large majority of cases. There are undoubtedly some cases in which the spleen is injured close to its edges, in which a small hematoma develops, and recovery takes place without further symptoms, except those of slight peritoneal irritation.

The symptoms are mainly those of intraperitoneal hemorrhage of progressive nature. The persistent dullness in the left flank, as described by Ballance, was present in two of our cases, but it is not constant. In one case, seen three weeks after injury, it was due to a localized abscess and blood clot. In another case it was markedly present in a man seen three hours after injury, in whom both the spleen and the kidney showed severe lacerations, necessitating nephrectomy and splenectomy. In other words, a case showing evidence of injury to the upper abdomen with signs of hemorrhage, should be explored and the possibility of splenic injury should be kept in mind.

## TREATMENT

Writers with large operative experience differ on this point. There are no hard and fast rules

because each case must be judged upon its own merits. Senn<sup>6</sup> condemns the ready resort to splenectomy. Suture or suture and tamponade of the injured organ may be good surgery in cases where symptoms occur late and where the injury is confined to the edges of the spleen. The majority of writers who have reported splenic injuries advise splenectomy as the rule, and their results show a larger number of recoveries. Kelly<sup>7</sup> states "The indication for prompt surgical treatment in splenic rupture is most urgent, as a spontaneous recovery is practically unknown and the safest and best surgical procedure beyond all doubt is splenectomy. Suturing the ruptured spleen has been successfully done in a number of instances, but this consumes more time and is attended by greater risk than splenectomy and should be considered only in those cases where the tear is small in extent and the spleen is otherwise normal."

Referring again to Senn's article in which he describes at length experimental work done on dogs, he reports no clinical cases. In the experiments the spleen was crushed from the edges inward toward the hilus. After these crushing injuries, the patient rapidly goes into shock, as there is much loss of blood. A general vasoconstriction takes place, which tends to minimize or stop hemorrhage for the time being. As the vasoconstriction passes, hemorrhage is apt to start again. In an organ as vascular as the spleen, suture can be applied, but there is great danger of renewed hemorrhage starting, even from the puncture of a needle. As these patients have already lost a lot of blood, we should not take the risk of further hemorrhage by apparently conservative measures, especially so when splenectomy has no apparent bad after-effects.

The writer has encountered four cases in twelve years, one of whom died because the splenic injury was not recognized at the time of the operation, as he had other injuries causing intra-abdominal hemorrhage.

## CASES

CASE 1. Mr. L., aged 22, was run over by a heavy wagon September 1, 1910. He walked to his home, and went to bed, as he began to suffer from severe pain in the upper abdomen. He was seen by the writer two weeks after the accident. At that time he had a temperature of 105°, with pulse of 130. The abdomen was distended, and there was a hard, indurated, immobile area in the left flank

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.

extending from the costal arch to Poupart's ligament. A left rectus incision was made, which showed a large amount of encapsulated pus displacing the descending colon to the right. Mixed with the pus were a large number of blood clots and a piece of tissue about three inches long and one inch wide and wedge shaped. This piece of tissue was pronounced by the late Professor Westbrook to be a piece of spleen. In this case the end of the spleen had evidently been caught in such a way as to tear off a portion of its edge. This case made a slow but perfect recovery.

CASE 2. Mr. L., aged 52, farmer, was caught under an automobile at 6 p. m. on August 16. He was seen in consultation with Dr. Shaleen at 1 a. m. on August 17, seven hours after the accident. There were no bruises of the skin. He complained of pain over the whole abdomen. He was rigid and tender over the upper abdomen on both right and left sides. His pulse was 110 and of good quality. He went to sleep after a hypodermic of morphine and slept until 5 a. m., when his pulse was 130 and he showed distinct pallor of mucous membrane and complained of severe pain. He was removed to the Warren Hospital at once.

At 8 a. m. his abdomen was opened under local anesthesia. I had examined the patient several times over a period of two years, and he showed signs pointing to granular kidneys. For that reason we did not use ether, which would have permitted a more thorough exploration. Had we done so he would have had some chance for recovery in spite of the granular kidneys, which were found at autopsy.

About a pint of blood clot was found mostly in the upper abdomen, and we found a small tear in the left lobe of the liver and a tear about two inches long in the omentum, which was still bleeding after sponging away the blood clot. No blood was found in the splenic area. He was given hypodermoclysis and reacted well. His condition was satisfactory until 6 p. m., that is, twenty-four hours after the injury, when his pulse rate started to go up until it reached about 140, although he was comfortable. At 11 p. m. he complained of severe pain in the left upper abdomen, had a sudden sinking spell, went into coma, and died at 1 a. m.

At autopsy we found a pulpified spleen, the capsule showing a rent only one and a half inches long. There was about a pint of clotted blood in the splenic area. Both kidneys were markedly granular. The patient passed no urine from the time he was injured to the time of his death.

CASE 3. Miss B., aged 15. On November 19, 1921, while walking along the street at 5:45 p. m. she fell over a fire-hose in such a way as to strike her abdomen. She walked home about two blocks. She complained of cramp-like pains and was seen by Dr. Blegen at 7 p. m., who thought that there was some abdominal injury, and Dr. Meland was called in consultation. An enema was ordered as her colon was filled. After the enema she vomited twice and had two paroxysms of pain. She was seen by me at 8:45 p. m., three hours after her injury, and her pulse had gone from 80 to 100, and her lips were pale. A diagnosis of internal hemorrhage was

made, and she was taken immediately to the Warren Hospital. At that time her blood pressure was 98 systolic and 70 diastolic. Pulse was 100. She complained of pain to the left of the navel.

Through a left rectus incision, a large amount of unclotted blood was found in the peritoneal cavity, which came from the region of the spleen. The incision was extended upward, and a cross incision was made outward. After exposing the spleen, three large fissures were seen near the hilus, which were bleeding profusely. There were also four small fissures on the convex surface, but these were not bleeding. Splenectomy was performed, and the wound was closed. The patient's condition became very poor toward the end of the operation, and 250 c.c. of citrated blood were given intravenously. It was taken from the father, whose blood showed group 4. On being put to bed, her blood pressure was 112 systolic and 70 diastolic. She made an uneventful recovery excepting for a mild left-sided pleurisy. She was discharged in good condition on December 13, 1921.

Examination of her blood in April, 1922, showed a white count of 9,000. The blood examination on September 6, 1922, showed the following:

Leukocytes .....	13,200
R. B. C. (in millions) .....	4,100,000
Polymorphonuclears .....	60
Small lymphocytes .....	18
Large lymphocytes .....	17
Large mononuclears .....	5

CASE 4. Mr. G., aged 31, came to the Warren Hospital on August 3, 1922. He had been kicked by a horse in the left hypochondrium about 12 o'clock. He fell down, but did not lose consciousness. In half an hour he began to have abdominal cramps which gradually became more severe, and he began to feel dizzy. He was brought to the hospital about 2 p. m. and complained of severe cramp-like pains in the left side of the abdomen. Examination showed an immobile area of dullness in the left flank. He passed four ounces of bloody urine containing clot. His blood pressure was 108-60. His pulse was small and rapid, and mucous membrane was pale. He was immediately taken to the operating room.

An oblique kidney incision was made. The fatty capsule of the kidney was greatly distended, and on opening the fatty capsule the kidney was found badly lacerated and split transversely. A large retroperitoneal hematoma, about 500 c.c., which had dissected down toward the pelvis was evacuated, and the lacerated kidney was removed. The anterior end of the kidney incision was enlarged and the peritoncum opened. Blood clot was found in the abdominal cavity, and the spleen was found split into three pieces, hanging only by its vascular pedicle. These were ligated and removed. The patient was given 500 c.c. of 5 per cent glucose intravenously on the table and returned to bed in good condition, his pulse at 4 p. m. being 68. His blood pressure on leaving the table was 112 systolic. He had some abdominal distention, otherwise he made an uneventful recovery.



Examination of the blood on September 7, 1922, showed the following:

Leukocytes .....	14,950
R. B. C. (in millions) .....	4,230,000
Polymorphonuclears .....	47
Small lymphocytes .....	25.5
Large lymphocytes .....	23.5
Large mononuclears .....	2.5
Basophiles .....	.5
Transitionals .....	1.

Report of the case on September 12, 1922: He can run his automobile, and he feels as well as ever.

In reviewing these four cases, we see the advisability of making a thorough search for splenic injury in every case of injury to the upper abdomen. Injuries to other organs in the abdomen may be associated with splenic injury.

In view of the large number of persons who have lost their spleens as a therapeutic measure for the different anemias, and who suffered no ill results and, in many cases, have received considerable benefit and cure, and in view of the large number of cases where the spleen was removed for trauma, without any apparent bad after-results, we are justified in the average case in removing a lacerated spleen rather than temporizing with tamponade and suture, because the tamponade and suture of the soft and vascular spleen are not safe in the average case. Splenectomy can be performed with greater safety.

#### REFERENCE

1. Willis, M.: S. G. & O., vol. 29, p. 33.
2. Levi, L.: Zentralblatt f. Chirurgie, 1910, vol. 50, pp. 15-77.
3. Berger: Arch. klin. Chir., vol. 68, p. 865.
4. Deaver: Surgery of Abdomen, vol. 2, p. 425.
5. Agnew: Surgery, vol. 1, p. 362.
6. Senn: Jour. of the A. M. A., 1903.
7. Kelly: Gynecology and Abdominal Surgery, vol. 2, p. 610.

#### DISCUSSION

DR. VICTOR A. MASON (Marshfield, Wis.): I have seen several cases of ruptured spleen, and I believe it is almost impossible to make a diagnosis of a ruptured spleen beforehand, as it may be part of an injury in which there has been damage to other organs in the abdominal cavity. Of course, if we have the history of a purely left-sided injury, and there are symptoms or signs pointing to abdominal hemorrhage, we should always consider the question of ruptured spleen.

I believe, with the essayist, that the only treatment is splenectomy. If, however, the rupture were simply a small affair it probably would be better surgery to try to save the organ. We know that removal of the spleen apparently produces no ill effects, but in all probability it does produce effects about which we know little at the present time.

The mortality rate in cases of ruptured spleen (51.8 per cent) is probably correct because the spleen, on account of its small size and extensive blood supply, will have, when ruptured, a more

dangerous hemorrhage than will the ruptured liver, as the latter is much larger, and there we may have a large tear without the danger of having as extensive hemorrhage, as in the case of the ruptured spleen.

There is one point that I think is worthy of remembrance in these cases, and I have made use of it several times: In all cases of intra-abdominal hemorrhage one of the very good points in the diagnosis, especially if we know anything about the patient beforehand, is the taking of the hemoglobin content. If we have a lower hemoglobin content than we have reason to believe is normal or anywhere near normal, this is a very good sign of intra-abdominal hemorrhage.

DR. JOHN L. TAYLOR (Libertyville, Ill.): I wish to report a case of lacerated spleen that I had during the past summer. The subject was riding in an automobile which was struck by an electric car. He was a high school student, and several other students were with him; and in the accident a girl in the car sustained a basal fracture of the skull. I reached the scene of the accident right after it occurred, and I noticed that the girl was very seriously injured as she was unconscious. I had her removed to a house, and then I went back to the boy, who, his companions said, had been bruised. His face and arms were all covered with lacerations and bruises. He was conscious and there was not at that time any sign of severe abdominal injury. I took a good deal of time in getting the grease, cinders, and dirt out of the superficial wounds and then went back to see the girl. In the meantime I ordered an ambulance to take her to the hospital. I then went back to the boy and did not just like his condition. I thought he looked as if he was bleeding somewhere. He complained of only slight pain in the lower part of abdomen, and I decided to catheterize him. I got almost clear blood, and concluded that he probably had an injured kidney. I had him taken to the hospital, opened the abdomen, and found no injury to the kidney or bladder. There were no external marks over the abdomen, but the abdomen was filled with blood and it was bleeding all the time and so profusely that we could hardly see except as we would hold it back with tampons. On examining the spleen we found it completely macerated. We performed splenectomy, and for a day or two the boy seemed to be getting along finely, there was no sign of abdominal distention, but about the third day he began to vomit and finally died. At autopsy we found that there had been no postoperative bleeding anywhere, but in the lower part of the abdomen where he complained of the pain the mesentery had become gangrenous, and the intestinal wall had given way.

DR. ARTHUR N. COLLINS (Duluth, Minn): What did the kidney show at autopsy?

DR. TAYLOR: Nothing; it was all right.

DR. COLLINS: Where did the blood come from?

DR. TAYLOR: I do not know. It could not have come from the injury down in the lower abdomen through the bladder wall without an injury of the bladder.

DR. COLLINS: It could if the bladder was ruptured.

DR. TAYLOR: The bladder was not ruptured. At first there was, as stated, almost clear blood in the urine when I catheterized, then he urinated two or three times with some blood in the urine, and soon afterwards he voided clear urine.

DR. BRATRUD (closing): In regard to the case reported by Dr. Taylor; I have seen several cases that passed bloody urine for one or two days and then cleared up—cases that were carefully watched, but which were not interfered with. With confusion of the kidney we get bloody urine without serious injury of the kidney. Simply because we have bloody urine does not justify us in interfering

unless we have symptoms showing undue loss of blood.

Dr. Mason referred to the normal hemoglobin content. When these cases come in with falling blood pressure we do not trouble with the blood count, even though there is hemorrhage. On account of the constriction of the vessels and the diminished volume of the vascular system the concentration of the blood is practically the same, and we have very nearly normal hemoglobin content, but, as time goes on and the patient starts to react and the body fluids have time to be taken up into the vessels, then we have a diluted blood and as a result a lowered hemoglobin content.

## TREATMENT OF ACNE BY AUTOGENOUS VACCINES\*

BY EDWARD C. GAEBE, B.Sc., M.D.

HARVEY, NORTH DAKOTA



In presenting this paper I do not in any way claim to be an authority on the subject, for there are others that have dug into this deeper than I could ever expect to. I have, however, had several good results, and feel that the more we encourage autogenous treatment, the more we shall find out about it, not only acne, but furunculosis, carious infections, etc.

Acne is an inflammatory disease of the skin occurring in and around the sebaceous glands, characterized by papules, tubercles, or pustules, affecting chiefly the face, neck, and back, and running more or less a chronic course. Comedones or blackheads, and oily seborrhea often co-exist. There are various predominating forms:

Acne papulosa consist of small reddish papules.

Acne pustulata is a pustular lesion having pea-sized pustules resulting from suppuration of the papular lesions.

Acne indurata is a pustular lesion having infiltrated bases and nodular deep seated bases.

The treatment depends on the kind of predominating lesion. In the constitutional treatment the systemic errors are looked after, such as constipation, dyspepsia, menstrual irregularities, anemia, and general debility. An attempt is made to build up the general resistance by restricting the patient's diet, and by hygienic measures such as cold baths, out-door exercise, and regular, clean living.

The autogenous treatment depends a good deal on the type of lesion the patient has. If the patient has a mixture of these lesions, namely,

the deep-seated nodule, suppurating pustule, and comedones, it is well to get a mixed vaccine. This is done by inoculating, or culture with the superficial pustules containing mostly the staphylococci. Then pick out a good deep-seated nodule, cleanse the surface with alcohol, and lance the nodule, expressing the pus, which contains the acne bacilli. In isolating the organism the deep glucose is used. A great deal of difficulty that may be experienced in preparing autogenous vaccine for acne and also the failure of such vaccine in certain cases has been due to failure to isolate the acne bacillus. It will, of course, not grow aerobically when first isolated. When the comedone is planted in liquified deep glucose agar the acne bacillus will appear in the form of characteristic colonies which can be picked out with a platinum needle, and after two or three generations the transfer will grow on agar slant-culture.

The dosage of the vaccine depends on the susceptibility of the individual and the nature of the infection. It is well to start out with about 10,000,000 staphylococci, and, if deep-seated nodular lesions co-exist with the superficial pustular type, about 1,000,000 acne bacilli can be administered in combination. This is then carefully watched. If there is little local reaction at the end of thirty-six hours, and no new lesions develop at the end of three or four days, we give the second injection, gradually increasing the dosage. If at any time we notice a negative phase manifested by too many new lesions the number of bacteria must be decreased. The patient should be seen about twice a week. In combining the local treatment I usually use a

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



hot 1 to 5,000 bichlorid solution, wring out a heavy Turkish towel in this, and apply it to the patient's back, neck, or wherever the lesions are, changing it about every five minutes till the pores of the skin are well opened. I then express the comedones and lance the deep-seated nodules, and express the pus. The surface is sponged with alcohol, or at times a sulphur ointment is used.

Vaccine therapy is tedious and quite discouraging at times, and it takes team-work on the part of the physician and the patient. The patient must be brought to understand the difficulty of the treatment, and the ultimate results that we expect to obtain. Time is never lost in describing to the patient how we expect to increase his resistance to the infection. Create in him, if possible, a spirit of hopefulness, through which the closest co-operation may be obtained.

#### DISCUSSION

DR. JOHN M. DODD (Ashland, Wis.): We have for a long time regarded the treatment of acne by autogenous vaccine as one of the specific forms of treatment and one which is rather more satisfactory than vaccine or serum treatment in other chronic conditions.

The only thing I would emphasize in the treatment of acne is the hygienic care. Dr. Gaebé states that it requires team-work, and it requires a lot of work on the part of the physician who treats one of these cases of acne if he is to secure satisfactory results.

I have been in the habit of giving a little program to the patient to take to the nurse or the skin specialist or whoever is to administer the treatment: First, remove all the crusts and then soften up the skin by the use of soap and water, after which a hot towel is applied. After the skin is thoroughly softened open up all pustules and remove the contents. Then massage the skin until the contents of the sebaceous follicles are removed. Next apply peroxide of hydrogen to the surface to destroy what surface pus there is, and then use the hot towel again. After that apply cold cream or some healing ointment, and finally talcum powder, followed by exposure to the air and sunlight.

I think we can cure acne a great deal quicker if this treatment is persistently followed out and combined with systematic internal treatment, and vaccine treatment.

It is a very annoying affection, and the treatment calls for considerable time and a great deal of mechanical work. That is one of the things our profession is neglecting,—the mechanical treatment of patients. We have only to note the way people look to the chiropractor for proof that they want mechanical treatment. I think the only solution of the chiropractic problem in this country is for the doctors to provide this mechanical treatment and it should be given under the direction of the physician if not by his own hands.

DR. BURTON C. FORD (Minneapolis, Minn.): One might say that the treatment of acne is a small thing in a big subject. I think the consensus of opinion among dermatologists now is that we can get almost as good results with stock vaccine as with some of the autogenous vaccines, and the use of the former eliminates a great deal of work. Some cases treated with autogenous vaccine come out very nicely, but in others we do not get the results desired. It may be possible that when we are getting the anaërobic bacilli out, the virulence is materially affected.

Recently I have noticed several good reports of x-ray treatment of acne. I think we get very good results with x-ray therapy in these cases, possibly in one or two or, perhaps, three treatments.

Dr. Dodd incidentally mentioned the point of heliotherapy. This treatment seems to clear up a good many cases of acne, especially on the back, if one gets a good tan.

DR. JOHN V. R. LYMAN (Eau Claire, Wis.): I have had success with the stock vaccines in treating acne. One point I might mention in the treatment of a pustule as suggested by Dr. Dodd. After the application of hot towels, softening up the crusts and expressing the contents, if we take an ordinary toothpick, dip one end into carbolic acid and the other into alcohol, first introducing the carbolic acid into the depths of the pustule and then the alcohol to neutralize it, I think the healing process will be much enhanced.

DR. CLARK C. POST (Barron, Wis.): Since January I have had twelve or fifteen cases of acne vulgaris in school girls and young people, some very bad cases, treated by the actinic ray, or quartzlight lamp. The actinic ray applied in this way cleared them off very nicely, with so far no recurrence. This truly is a wonderful treatment for acne.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.): The majority of patients who come for treatment are young women who principally desire it for the cosmetic effect. They long for a treatment that will cure the defect. I often tell them that there is no use starting treatment unless they are willing to co-operate, that, as a rule considerable time is required to cure these cases, and, unless they are willing to co-operate, there is no use starting treatment.

I usually employ stock vaccine along with diatetic treatment, and I think that is very important. We cannot cure acne when the patient is eating rich and fat food. We have to cut the diet down to plain food.

As a rule, I use the stock vaccine because it is hard for me to make the autogenous vaccine. If I deem it advisable to use the latter I send away to have it made.

DR. LYMAN A. COPPS (Marshfield, Wis.): I wonder whether the effect of a vaccine, stock or autogenous, is not that of a foreign protein reaction, and whether one cannot get just as good results from foreign protein reactions as from specific reactions. I have been using foreign protein reactions in eye-work, and I noticed incidentally that two cases of acne cleared up.

## A FEW PREOPERATIVE CONSIDERATIONS\*

BY GILBERT HENDRICKSON, B.Sc., M.D.

ENDERLIN, NORTH DAKOTA

Our medical literature abounds with treatises on postoperative treatment and care in various surgical conditions. Preoperative care from the standpoint of medical writers at least has received less attention. Inasmuch as the prognosis in many instances is dependent upon precautionary measures preliminary to operation, it may not be amiss to review a few of the general principles that should be observed before operation.

This review will be presented from the standpoint of the surgeon, the anesthetist, and the patient. The surgeon is given first place because to him is relegated the management of surgical operations. He generally selects an anesthetist of his choice or, at least, sanctions such choice if the same is not entirely within his jurisdiction. The patient, because of confidence in the surgeon's professional skill and judgment, voluntarily assumes a minor part in the general management of a situation which primarily concerns himself.

The surgeon who is alive to a complete realization of the responsibility that he is asked to shoulder, cannot regard his position lightly. To him is given the task of establishing a correct diagnosis, as well as making a decision as to what surgical procedure to employ so as to safeguard, in the best possible manner, the patient's welfare. This means that he must make a thorough-going physical examination of the patient after securing a careful clinical history of the case. After establishing the fact that there is a surgical condition present, he must ascertain whether or not there is some other condition present which may affect his decision as to what surgical procedure to employ, as well as affect the postoperative treatment and convalescence. To this end it becomes necessary to make a thorough-going search for possible foci of infection. The natural orifices of the body should all be subjected to a routine method of examination. If the slightest evidence of pathology is present a more thorough examination can then be made. The tonsils and teeth should never be overlooked. The cardiovascular system, the respiratory system, and the genito-urinary system often reveal conditions of inestimable value to the surgeon. The heart is subjected to a careful examination

by palpation, percussion, and auscultation, supplemented by the *x*-ray and electrocardiograph if deemed necessary. The blood pressure, systolic and diastolic, is determined by the auscultatory method, and the pulse pressure is noted. In the examination of the lungs I find that auscultation by the exhale, cough, and quickly inhale method, gives more satisfaction than any one single procedure that I have tried. This method was employed in the United States Army and is deserving of consideration by all who make chest examinations, as it requires but little time and practically always reveals râles if they are present. Except in emergency cases, no patient with a cold should be operated on until all evidence of rhinitis, pharyngitis, or bronchitis has disappeared.

In addition to a qualitative chemical and microscopical examination of the urine for sugar, albumin, blood cells, and casts, a quantitative examination is advisable wherever doubt exists as to kidney normalcy. This is best done in a first class laboratory and should include a determination of the total nitrogen and ammonia content of the urine and the acidity by the hydrogen-ionic method. The functional capacity of the kidneys is determined by the phenolphthalein test or, better, the urinary test ration. This is very important, especially in elderly persons in whom a disturbance of renal function is not at all uncommon, making surgical procedure more or less hazardous.

Besides the routine blood cell count, estimation of hemoglobin, and differential count, a bacteriological examination of blood is indicated in septic conditions of obscure origin. Certain syphilitic manifestations so closely simulate surgical conditions as to call for a Wassermann test. In patients showing marked anemia, except in emergency, it is safer to resort to blood transfusion from a tested donor just before operation, as the operative coefficient of safety is thereby increased and convalescence shortened.

Acidosis may be the cause of death in many cases of septic appendicitis or gall-bladder conditions rather than sepsis. Variations in the alkalinity of the blood are of vastly more importance than temperature or pulse variations. A lessening of the hydrogen-ion concentration is an indication of the inability of the blood to

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



carry carbonic acid. This results in diminished respiratory stimulation with a resultant diminution of lung ventilation and an inability to establish a normal equilibrium of the blood.

Any abnormal vaginal or other secretions should be examined as possible sources of focal infection.

In abdominal operations the motility of the alimentary canal may be determined by means of the charcoal or carmine test and an *x*-ray examination of the entire tract made following a barium meal. If two carmine capsules are taken at breakfast, an enema taken at bedtime should remove the last trace of red color, or, at the longest, the carmine should disappear in twenty-four hours if the intestinal motility is near normal. In cases of sluggish motility this may be greatly improved by the use of mineral oil, agar, or bran.

The preoperative preparation of the gastrointestinal tract no longer consists in starving and purging the patient or the giving of repeated exhausting enemas. Regular diet is given the day before operation, an ounce of castor oil given at noon the day before the operation, followed by an enema in the morning will take care of any intestinal stasis and will usually take effect in time to permit the patient to have an uninterrupted sleep. It is very important that the patient should have ample sleep and rest before operation.

Special conditions call for special treatment. In patients with low blood pressure the feeding of nourishing and easily digestible food, copious drinking of fluids (water and milk), fresh air, and regulated exercise help to increase blood volume before operation. In case of high blood pressure rest in bed, a low protein diet, and withdrawal of tea and coffee, and giving fruit to stimulate intestinal motility, as well as to change the intestinal flora, will be found of value.

Prophylaxis against acidosis consists in carbohydrate feeding, together with the use of sodium bicarbonate. Farrar maintains that a solution of glucose given intravenously during an operation at the rate of 8 gm. glucose per kilogram of body weight, each hour of the operation, will lessen the acidosis incident to operation by promoting metabolism, preventing or diminishing the vomiting, and promoting diuresis. The subject of acidosis naturally calls for a brief consideration of the preparation of diabetic patients, before operation, in order to avoid a variety of possible postoperative complications. In diabetes an acid intoxication, or ketosis, is the foremost

among the possibilities of interfering symptoms. The existence of the ketosis and the degree of depletion of the alkali reserve of the blood can now be ascertained with scientific precision by clinically available methods.

Alkalis are no longer used to the same extent as before. Treatment is directed toward the averting rather than combating of ketosis by preventing the formation of ketone substances. As they are now supposed to arise from the incomplete catabolism of fats, owing to the inadequate combustion of carbohydrates by the diabetic, the first aim should be to decrease the fat intake to a minimum and attempt to raise the antiketogenic power of the organism. Oatmeal, levulose, and alcohol, by favoring the combustion of the ketones, should, therefore, be given before operating on a diabetic patient. In these patients the choice of anesthetic plays an important part. Chloroform and ether, because of their lipinsolvent properties, should not be employed because of the increased danger of a resultant post-anesthetic acidosis. Local anesthetics are usually quite satisfactory, but, because of their liability to produce shock, they are not so safe as nitrous oxide in expert hands. Jeanbrau and his co-workers tested the urine of thirty-five patients before, and for three days after, major operations under various forms of anesthesia. The findings show that acidosis followed in all the cases except those in which spinal anesthesia with procaine had been employed. The latter anesthetic, it is said, should, therefore, be preferred in cases of unstable balance and also when kidney or liver functioning is substandard.

From the standpoint of the patient, the surgeon alone merits much consideration, and his co-worker and helper, the anesthetist, is seldom given a thought until the administration of the anesthetic is commenced. Unfortunately, in many of our hospitals the administration of the anesthetic is left in the hands of the inexperienced interne or improperly qualified surgical nurse. In order to be of the greatest possible assistance to the surgeon, as well as best to safeguard the patient's welfare, the anesthetist must be a person who is well trained in the administration of the particular form of anesthesia used. Preferably, he should be a trained physician with experience in giving anesthetics. Nitrous oxide and gas-oxygen anesthesia should never be used, except by an individual who has had special training in their use. The nurse, with her insecure foundation in physiology, pathology, and medicine, cannot be expected to assimilate in the

proper degree the modern details of the subject of anesthesia.

The East has its anesthesia in the majority of cases conducted by specialists in this line, and many of our Western states are now in the process of transition to a higher standard. This hopeful change as regards the standard of anesthesia is brought about, as a rule, by the demand of the public and the general physician who refers the case to the surgeon. It is noteworthy that in communities where the professional anesthetist has been operating long enough to have gained recognition of his work, the public is beginning to discuss the anesthesia, as well as the operation itself. This is a significant fact, inasmuch as those who know about better anesthesia, will demand it, and are usually willing to go to considerable trouble to get it.

The anesthetist who is properly qualified knows that team-work between the surgeon and the anesthetist is essential. He not merely administers the anesthetic, but his duty is also to help prepare the patient for operation. This means that he must confer with the surgeon as to the patient's condition, and, preferably, conduct an examination of the patient himself at least the day before the operation. In this way he is enabled properly to direct the pre-anesthetic preparation according to the requirements of the patient from surgical, physical, and mental standpoints. In order that this may be properly accomplished it is necessary that the patient spend a day or more in the hospital preceding the operation. This enables the patient to become acquainted with the hospital and nurses in attendance, as well as the anesthetist, and it helps to overcome the fear and mental anguish that usually are present in some degree. This is especially true in children with whom suggestion plays such an important part. The gaining of confidence before anesthesia always leads to a more quiet induction.

Whether or not a sedative should be administered before operation is still an open question with many. Most men agree that the giving of a hypodermic of  $\frac{1}{4}$  grain of morphine and  $\frac{1}{150}$  grain of atropine sulphate is of value. This is particularly true in inhalation anesthetics, as here anesthesia comes on sooner and with less excitement. It has also been established clinically by Dr. T. Drysdale Buchanan, of New York, that with the open drop ether method, morphine and atropine decrease nausea and vomiting by more than 50 per cent. This, undoubtedly, applies to other general inhalation anesthetics.

The choice of anesthetic should be determined by the condition of the patient, the kind of operation, and the experience of the anesthetist. Ether, unquestionably, is the safest inhalation anesthetic in inexperienced hands; nitrous oxide and oxygen in experienced hands is said to be the safest. Gas and oxygen apparently is used very successfully by some men, but surgeons have to be taught to work with this particular form of anesthesia to obtain good results.

The statistics compiled by the Committee on Anesthesia of the American Medical Association for the years 1905-1912 in which are recorded over half a million administrations, show that sequences and combinations of anesthetics are safer and better than any one agent used alone. Thus, when oxygen is used instead of air with any general inhalation anesthetic, it adds to the immediate safety of the patient, as well as to his subsequent comfort. The same is true if the anesthetic used is heated to the temperature of the body.

Magnesium sulphate is another agent whose anesthetic properties in the form of a synergist are now being given a trial. Magnesium sulphate used with morphine synergizes the action of nitrous oxide and oxygen, and if used with ether it will reduce the amount required by from one-third to one-half with no decrease in efficiency. This aids materially in reducing the degree of postoperative nausea, vomiting, and general depression. It is said not to have any deleterious effect on any of the organs of the body, and when used as a synergist it has no toxic effect on the respiratory center. It prolongs the action of morphine by holding the drug in contact with the tissues longer, but with ether and nitrous oxide and oxygen it acts by deepening or increasing the effect rather than by prolonging it. A more general knowledge of the application of magnesium sulphate in anesthesia is desirable.

The mental attitude of the patient should never be overlooked in preparing an individual for operation. Worry and fear unquestionably serve to lower the powers of resistance to shock and infection. A frank discussion of the case, except in highly neurotic individuals, can do no harm and, indeed, is necessary in order to obtain a legal consent. Gruesome descriptions of operative procedures must be avoided, but a brief, clear description of what is to be done is desirable. The patient must not be left with the impression that the operation is entirely without danger. It is safer and better to say that the danger is very slight or remote in the average



case, and greatly outweighed by the benefits to be obtained. Aside from this, all reference to operation should be carefully avoided and all efforts made to keep the atmosphere and environment of the patient as cheerful, diverting and encouraging as possible.

## SUMMARY

1. A thorough going physical examination should always be made before undertaking any operation requiring general anesthesia.

2. Clinically available laboratory methods for the examination of blood and various secretions and excretions should not be neglected before operations.

3. Prophylactic measures to correct special conditions, like acidosis, too high or too low blood pressure, gastro-intestinal stasis, foci of infection, like diseased teeth or tonsils, etc., should be instituted.

4. Patients should not be starved or unduly purged before operation, and proper rest is very important.

5. The choice of anesthetist and anesthetic used must be given due consideration. Good team-work between surgeon and anesthetist is very necessary.

6. The personality of the patient should be studied and an effort made to secure a normal mental condition.

## BIBLIOGRAPHY

1. Frank, L.: Safety Factors in Surgery with Special Reference to the Blood. *Surgery, Gyn. and Obst.*, 30:182, February, 1920.
2. Gwathway, J. L.: Current Progress in the Service and Practice of Anesthesia. *Jour. of the A. M. A.*, vol. 77:6421, August 6, 1921.
3. Guedel, Arthur E.: Present Status of General Anesthesia. *Journal-Lancet*, vol xli:2343, June 15, 1921.
4. Jeanbrau, E., Cristol, P., and Bonnet, V.: Anesthesia and Acidosis. *Journal d'Urologie, Paris*, 71:N5-6, p. 505, May-June, 1921.
5. Farrar, L. K. P.: Acidosis in Operative Surgery. *Surg., Gyn., and Obst.*, April, 1921, 32:438.
6. Kahn, M.: Preoperative Preparation of Diabetic Patients and their Subsequent Treatment. *Surg., Gyn., and Obst.*, 31:363, October, 1920.
7. Kellogg, J. H.: Safety Methods in the Care of Surgical Patients. *Amer. Jour. of Surg.*, 34:261, October, 1920.
8. Buettner, J. J.: Safety Factors in Team-work of Operator and Anesthetist. *Amer. Jour. of Surg. (Anesthetic Supplement)*, 34:17:1920.

## DISCUSSION

DR. DEWAYNE TOWNSEND (Belgrade, Minn.): I wish to lend a little emphasis to some of the points Dr. Hendrickson brought out. Use all the available means at hand to find the thing that ails the patient in addition to the surgical diagnosis; for instance, Has the patient anemia? If so, it is better to wait until some measure of strength is restored.

I am located twenty miles from a hospital, and I have operated on more than one patient in the country on a kitchen table. I remember one night when a small flashlight was all we had under which

to operate on a child's ruptured appendix, but it sufficed. Such facilities as we have at our command must be used in emergencies, even though they are most limited.

The subject of this paper is "Preoperative Considerations." Those considerations most certainly do affect the patient's chances of recovery; for instance, the patient may have acute appendicitis and with it certain organic or systemic diseases that might make the operation extremely dangerous, as tuberculosis. I do not not know what may have been the experience of others in operating on patients with acute pulmonary tuberculosis. I operated on one young man who had had hemorrhages with a temperature of 103° or 103.5° in the afternoon for a period of about three months, when finally his temperature came down to normal. A short time after that he developed acute appendicitis, and we operated with fear and trembling, but he never had the slightest reaction due to the operation.

Perhaps the most common complications we have in the way of accident surgery are hemorrhage and shock. Of course, in case of shock we never operate if possible to avoid it, simply putting the patient at rest and applying heat.

There is one factor the essayist left out, and that is obesity. In the case of a man whose abdomen is very thick we dread to go in, and we try to find out what is wrong. However, my experience with fat people does not discourage me in going ahead with any necessary operative procedure.

There is one condition in regard to which I desire information: that known as status lymphaticus. I have never yet seen such a case diagnosed except post mortem. I wonder if it is possible to make the diagnosis ante mortem. How do we diagnose that condition? I had hoped I would learn here how to diagnose status lymphaticus before the case comes to necropsy.

As to the administration of morphine preceding the operative procedure: I think it is a very excellent thing to combine it with atropine because this undoubtedly limits the amount of secretion to the throat and makes the anesthesia easier. The narcotic quiets the patient and relieves him of considerable mental distress before going to sleep under the anesthetic. However, there is considerable reaction to morphine. Some people are very sensitive to the drug, and I think it ought to be administered an hour or an hour and a half before the anesthetic is started. Sometimes it is given only ten or fifteen minutes before the patient goes under the anesthesia, which of course is wrong.

DR. VICTOR A. MASON (Marshfield, Wis.): I believe there is not enough real study put on patients before they are operated on. One of the chief causes of insufficient preliminary study of our patients is the fact that many surgeons are situated the same as I am. The doctor will call up perhaps early in the morning saying that he is sending or bringing a patient with appendicitis or with something else. When he arrives he wants the patient operated on as soon as possible, in order that he may know the results and get away as quickly as he can. That is a mistake, but it is one that is very hard to get around, and the solution of the problem will de-

pend on how soon all surgeons reverse this method and allow sufficient time so that the one who is going to do the work will have an opportunity to examine the patient.

The method of using morphine with magnesium sulphate is in my opinion very good. I have used it since last year, and I am satisfied that we have less abdominal distension and restlessness after using magnesium sulphate with morphine.

I was glad to hear so much stress placed on the laboratory side of the paper. I think all these patients, and especially kidney and prostate cases, should have a preliminary blood chemistry test besides the other necessary tests. The mortality in patients with diminished renal function is much higher, and this factor tends to lessen the good work that could be done by surgical methods and proper preliminary measures to get the patient in better shape.

DR. HENDRICKSON (closing): I do not feel qualified to discuss the point brought up by Dr. Townsend, the ante-mortem diagnosis of status lymphaticus.

Dr. Townsend mentioned a point in connection with the use of morphine which I think is rather important. Frequently morphine is administered only fifteen minutes before the anesthetic is com-

menced, with the result that the patient does not react well, and the anesthetist wonders what is the matter with the anesthetic, whereas the sedative given is responsible for the reaction.

Possibly another point has been left out which might be comforting to the surgeon and anesthetist and also to the patient, and that is the question of blood pressure at the time of operation. I did not mention shock. We know that there is a circulatory depression after trauma. Whether the etiological factor is that of hemorrhage, over-anesthetization, toxemia, pain, or one or several of these combined, does not matter. The point is that we get a circulatory depression. The sphygmomanometer will tell us. To put a band around the patient's arm can do no harm. If we find that there is a drop in the blood pressure and an increase in the pulse rate, or if there is an increase in the pulse rate without a corresponding increase in the blood pressure, we should be on our guard. If the increase in the blood pressure amounts to 25 per cent with a decrease in the pulse rate of about 25 per cent, or if the increase of pulse rate is about 25 per cent with a decrease in blood pressure of about 25 per cent, we know we are approaching danger. In these cases it is questionable whether or not we should operate.

## PERITONEAL ADHESIONS\*

By THORVALD PETERSEN, M.D.

MINNEAPOLIS, MINNESOTA

One of the most potent factors in surgery of the abdomen relates to peritoneal adhesions for the following reasons:

They lead to a large number of constipations, to an extremely important percentage of the obscure dyspepsias, and to various local areas of pain and tenderness not accounted for, but for want of a better explanation, called gastric neurosis, and frequently enough to acute disaster to warrant a serious consideration of their etiology and treatment. In post-mortem work we find peritoneal adhesions at some point in pretty much every abdomen, in adults at least.

I believe the chief causes of adhesions are the following:

Neglected acute surgical abdomens, especially perforations, gangrene and obstructions. Here nature in most instances builds up protective adhesions. During the surgical procedure in these cases trauma becomes a necessary evil, predisposing to more adhesions. All infections, whether acute or chronic, predispose to adhesions. Exposure of abdominal contents to heat, cold, foreign bodies, chemical agents, and Röntgen

rays tends to form adhesions. Defective circulation of lymph is a very important factor. "Adhesions for the most part undergo absorption by the lymphatics under ordinary physiological conditions, but where there has been much disturbance of tissues infective or traumatic the connective tissue replaces the reparative lymph, and the adhesions remain permanent". Impaired innervation is perhaps a factor of not so little importance in the formation of adhesions. There is also apparently a personal susceptibility—some peritoneums do not form adhesions of any consequence even under marked provocations; there seems to be a natural immunity, while, on the other hand, in some peritoneums they appear despite all precautions (susceptibility.)

The pathology of adhesions is that of any inflammation, the changes which occur when a tissue is injured including invasion of bacteria. There are no pathognomonic symptoms of adhesions but the following are suggestive:

Pain in the abdomen increased by exertion and dull, burning, pulling, gnawing sensations. Constipation, dyspepsia, and gas in the bowels. Nervousness, inability to sleep, and the symptoms usually spoken of as gastric neurosis. Distant

\*Presented before the Staff of Fairview Hospital, Minneapolis.



reflex disturbances, especially cardiac irregularities. Chronic course in spite of treatment, and not much emaciation. Melancholia and depression are common when the adhesions are in the region of the bile tract, probably due to biliary stasis.

The more definite objective findings in adhesions are:—

Definite fixation of organs out of their normal positions and limitation of the normal gliding of the viscera. Angulation of the intestine, and filling defects not accounted for by other pathology; sluggish peristalsis and strictures not accounted for otherwise.

The treatment of adhesions should be preventive, and I believe they can be almost eliminated by early diagnosis and immediate operation in all acute abdomens, before suppuration, perforation, gangrene, and obstruction occur. This will eliminate trauma in competent hands to a minimum; all sorts of drains, and to a large extent the packing off of the abdominal contents, and sponging will be reduced to insignificant factors. Gentle handling of the intestine and limiting manipulation to pathological areas are also important factors. Mauling around creates pathology as we go along, and cannot be too strongly condemned. Exposure of abdominal contents to air, heat, cold, and chemical agents is also bad practice, and leads to adhesion, the same as any other foreign body would.

I realize that frequently the doctor is not called early enough and cannot be held responsible in those cases for what has occurred. There are, however, too many cases where too long watchful waiting and too many tests are insisted upon and valuable time is lost in definite acute surgical abdomens.

Until the people get educated to call their physician early, and he trains himself to recognize the acute surgical abdomen, it will be necessary for the surgeon to consider the matter of

separating peritoneal adhesions when they are found to give trouble and to prevent their recurrence.

Adhesions should be liberated only when they give trouble as there is marked tendency to reform. Numerous reports of success with aristol film has been reported, which forms a mechanical obstacle on account of the lymphcoagulum engaging the aristol in its mesh. The Cargile membrane forms the same kind of a mechanical obstacle to adhesions but has the advantage of being rapidly absorbed. Lubricating adhesion areas is favored by some surgeons on the ground that peristalsis keeps oiled tissues moving too freely to allow adhesions to form. Solutions of sodium citrate and sodium chloride have also been poured into the peritoneal cavity with the idea of preventing adhesions.

I believe specially prepared membrane and lymph-coagulum with aristol or other chemicals, as well as chemical solutions, are useless for the prevention of adhesions, and that they really act as foreign bodies and are causes of adhesions, the same as any other foreign material.

When adhesions have been permitted to occur and give trouble, then the rational treatment consists in covering denuded areas with peritoneum, suturing part of the mesentery or omentum between the two surfaces, holding the raw surfaces away from each other by shortening the normal supports of the organ, or suturing it or its supports to some other peritoneal surface. Short-circuiting operations often give relief. Postural treatment aids considerably in the prevention of adhesions especially in the region of the bile tract. Omental grafts to cover raw surfaces, and fat from the abdominal wall in obese patients can often be used to advantage. The actual cautery is a useful preventive agent. Thorough asepsis and all possible avoidance of trauma and exposure to air are the main considerations.

## SOME EVERY-DAY PROBLEMS IN PROCTOLOGY\*

By W. A. FANSLER, A.M., M.D.

MINNEAPOLIS, MINNESOTA

It is the purpose of this paper to cover in a general way some of my own experiences and beliefs in regard to a few of the more common rectal affections. These opinions may not coincide in every case with those of others, and it

is possible that five years hence I may wish to retract some of the statements I shall make tonight, for we should always have an open mind toward any changes for the better.

There has been a great deal of misapprehension among the public in general concerning rectal

\*Presented at the monthly meeting of the Swedish Hospital Staff, Minneapolis, Minn., March 10, 1924.

affections. Any pain or disturbance in this region is usually regarded as "piles," and self-medication is the rule. No doubt one reason that self-medication is so prevalent, is that rectal operations have the reputation of being very painful and also that they are frequently only partially successful. This belief is, of course based somewhat on fact, for rectal work in many cases has been done poorly and without proper regard for the structures involved. This has often caused a great deal of unnecessary pain and an unfavorable result. There is no reason for severe pain, for, although sensation is very acute in this region, with proper regard for anatomical relations and unnecessary trauma, pain should be slight and the end-results excellent. If the patient could be assured of this he would be less hesitant to have the operation done and would not wait until his condition was so bad that he was simply compelled to be operated on. In turn, this would make the operative procedure more simple and results better. It would seem then that it is our duty as physicians to give enough study to rectal conditions to be able to treat them properly. Then we should teach the public that their fear of great pain and poor results is unfounded and that the earlier they have their condition cared for the better for all concerned.

There are usually two methods of treating a given condition, medical and surgical. Each has its own place, and it is frequently a question which to advise. Most rectal affections are not serious from the point of view of life and death, but are serious from the point of view of annoyance and discomfort to the patient and the loss of time from his daily work. When, then, should the physician advise the discontinuance of palliative medicinal measures and advise the use of the more radical procedure from which permanent results can be expected?

In the case of hemorrhoids there are primarily three conditions which indicate that the more radical procedure is advisable:

1. Persistent or recurrent hemorrhage.
2. Frequent prolapse of the hemorrhoids.
3. Pain.

Pain in simple uncomplicated hemorrhoids is rather unusual, and, if present, some complication should be suspected. A dull ache is not so unusual, but sharp pain almost always means that a thrombus has developed in an external hemorrhoid, or that an internal hemorrhoid has prolapsed and become strangulated. These conditions are easily discerned by inspection, and,

if neither is present, you may be sure that the pain is not due to hemorrhoids alone, but that some other condition is also present.

Persistent or recurrent bleeding or protrusion indicates that the hemorrhoidal condition is at least fairly well advanced. There may be periods of remission from time to time, but the general trend of the condition is for the worse, and you may be sure that, sooner or later, something of a radical nature will have to be done. By waiting you simply have a more aggravated condition to deal with and an older patient whose recuperative and healing powers are less.

The next question is the choice of procedure. At the present time there are three widely employed methods, namely: the clamp and cautery, the ligature, and the obliteration of the hemorrhoidal vessels by electrolysis or interstitial injections. Personally, I am not an exponent of the clamp and cautery as I believe that it is more painful than the other methods of procedure and that it is impossible to do an accurate anatomical removal of all hemorrhoidal tissue by this method. The clamp and cautery or ligature have the advantage that the entire procedure can be accomplished at one sitting and the cure more quickly completed.

Unfortunately, the method of obliteration until recent years has been largely in the hands of quacks, who, armed with a hypodermic syringe and a bottle of solution, guaranteed to "cure without the knife" and injected all who came their way. Their technic was often bad and their judgment worse, and the result was that this method fell into disrepute, which it does not deserve. It is my opinion that it requires greater judgment and experience to get good results from electrolysis or injection than it does to operate. The oblitative method has the advantage of permitting the patient to pursue his usual occupation and does not necessitate confinement to the hospital. This method is only suitable for internal hemorrhoids, but, if external ones are present, they may be operated on under local anesthesia at the physician's office. To treat a case properly by this method requires from six to eight weeks, although the time may be shortened if the patient does not have to work. Where speed is desired I usually advise the patient to go to the hospital and be operated on.

In dealing with fissures it again is a question of operation or medication. A fissure is but a crack, but, even so, the chief question of whether or not it will heal without operation is one of drainage. If the fissure is fairly recent and there



is no sentinel pile or tap of skin at its lower end which prevents complete drainage it will frequently heal by the use of local application and keeping the bowels soft. However, the bowels must always be soft for one hard stool will do more damage than nature can repair in a week's time. Any fissure which does not heal in three or four weeks is best operated on, and sooner if the pain is severe. If drainage is retarded, as indicated above, operation should be done at once as local applications are useless. Incision or excision with removal of excess skin and tags is my choice of procedure.

The majority of fistulæ consist of one tract and are relatively simple, yet there is probably no type of case which is so frequently operated on unsuccessfully. Almost all fistulæ have their beginning as an abscess, and any abscess about the rectum should be thoroughly drained the moment it is discovered. Waiting to see if it will disappear under medicinal measures is worse than useless. They only increase in size, causing destruction of a larger area of tissue. Occasionally it is true that the swelling may subside and apparently be absorbed. However, this is only apparently and merely means that the abscess has ruptured internally into the bowel instead of externally, and the patient will have the same trouble again. Therefore drain these abscesses at once while a minimum of damage has been done. In operating on a fistula remember that practically every case has an internal opening into the bowel. If it did not the fistula would quickly heal, as any other simple sinus does. The internal opening may be difficult to find, and it is due to this fact alone that operation is unsuccessful in many of these cases. If the internal opening is discovered and the tract laid open from end to end 100 per cent of cures will be the result.

It is my opinion that all fistulæ should be operated on. When they drain there is little absorption, but during the frequent occasions when the external opening is healed and pus is retained the system undoubtedly takes it up. There is an impression among some physicians that, because of the scar tissue surrounding the fistulous tract, there is no absorption. This is not true, for I have seen numerous patients who for years would have joint disturbance, lumbago, etc., every time their fistulæ were closed over. Another reason for operating is that, if allowed to go on, multiple fistulæ may result. One case of over sixty external openings is reported in the literature. I personally had one case with

twelve external openings. A recent case illustrates this: a patient came in with a fistula which had two external openings, one was about one inch anterior to the anus and had been present for ten years. The second was on the right buttock at least seven inches from the anus. This man had been advised that the first fistula would cause him no harm as it had a firm wall of scar tissue around it. However, after ten years the second opening formed, necessitating a very severe operation with a long deep wound and prolonged convalescence, while the original fistula could easily have been operated on at the physician's office under local anesthesia and would have caused a disability of not more than two or three days.

There are a few general rules in the care of rectal cases which I think are important, especially from the point of view of the comfort of the patient. In the first place it is to be remembered that the area of acute sensation is the anus and anal canal. Above the junction of the anal canal and the rectum there is practically no sensation. For this reason care should be taken to do as little trauma to the anal region as possible. No ligatures should be used in this region and no cauterization should be done here. Ties and cauterization should be in the rectum itself and above the anal canal. Also stitches in this region are usually unnecessary and should seldom be employed, and they increase pain and offer a nidus for later infection. Bleeding in this area can be controlled by torsion and pressure rendering catgut unnecessary. Observation of these few operative principles will do much to lessen the patient's after-pain. Another fruitful cause of after-pain is the use of the rectal plug, which acts as a foreign body and excites painful spasms of the sphincter and levator ani muscles. If it is desired to hold the raw surfaces apart this can be satisfactorily accomplished by the use of a well-greased piece of rubber tissue. Gas can be cared for by the use of a small rubber catheter, so that there is really no excuse left for the use of the rectal plug. Another prevalent custom which I think is fundamentally wrong is that of confining the bowels for several days after the operation. I plan to have the patient's bowels move within twenty-four to thirty-six hours. To accomplish this and insure a soft stool I give liquid petrolatum by mouth immediately following the operation and an oil enema the next morning. If the bowels are confined for several days a hard dry stool forms in the rectum, and the passage of

this causes excruciating pain. It is possible that there may be some method whereby this stool can be rendered soft, but I have never discovered it. Occasionally it may be thoroughly liquefied, but more often there are hard lumps, which cause great discomfort. The remaining thing which I find useful in reducing pain is the hot sitz bath which should be started twenty-four hours after operation. This is a routine at St. Mark's Hospital in London, and I make it so with my patients.

I have tried, briefly, to cover the high lights of some of our more common rectal affections and to state some of the general principles which I believe apply in these cases. In closing let

me make what might be termed the proctologist's plea: Never prescribe any treatment whatever for a rectal case without an adequate examination, both visual and manual. I have only to remind you that in the past, 20 per cent of cases of rectal carcinoma gave a history of recent operation for hemorrhoids. Within the past year I have seen three cases of cancer of the rectum which within six months had been operated on for hemorrhoids and valuable time lost. Blood from the bowel does not always mean hemorrhoids, and the absence of anemia, loss of weight, and cachexia do not mean that a cancer may not be present.

## THE CLINICAL LABORATORY: XI. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL, MINNESOTA

OTHER DISEASES AND ABNORMAL CONDITIONS IN WHICH ABNORMAL FINDINGS ARE PRESENT AND WHICH MAY BE USED AS AIDS IN DIAGNOSIS

*Eclampsia*: leucocytosis.

*Drug Poisoning*: (quinine, salicylates, phenacetine, chloroform and ether inhalations), leucocytosis.

*Some diseases of the skin* (*pemphigus*, *blastomycosis*, *scabies*, *mycosis*): increase of eosinophiles.

*Some diseases of ductless glands*: lymphocytosis.

*Cirrhosis of the liver*: lymphocytosis.

*Rachitis*: lymphocytosis.

*Bronchial Asthma*: eosinophilia.

*Hookworm disease*, *trichinosis*, and *some other intestinal parasitic diseases* (*oxyuris*, *ascaris*, and *tenia*): eosinophilia.

*Chronic Diseases and Hemorrhage*:

These conditions may include hemophilia, infestation with intestinal parasites, gastric ulcer, hemorrhoids, and other diseases in which there is a more or less constant hemorrhage. The characteristic findings are slight *leukocytosis*, diminished number of *erythrocytes*, increased number of *blood platelets*, occasionally *polychromatophilia*.

*Poisoning*:

In lead poisoning the *red cells* and *hemoglobin* decline; either *leukocytosis* or a slight leukopenia

may be found. The characteristic blood finding is *basophilic stippling*.

*Infections*:

Red cells may be markedly reduced in certain infections, such as those in which *streptococcus hemolyticus* is present and the malarial plasmodium.

*Diseases in which the parasitic etiological factors are found in the blood*.

*Malaria*: For the diagnosis of malaria the blood should be taken shortly after a chill. The parasites or *plasmodium malariae* are found in the red blood cells frequently in the "signet ring" form.

*Trypanosomiasis*: This is a tropical disease, known as the "sleeping sickness" of South Africa. The parasite is carried by the tse-tse fly. The trypanosomes may easily be found in the peripheral blood.

*Filariasis*: The embryo of this nematode may be found in the circulating blood.

*Relapsing Fever*: *Spirocheta Duttoni* may be found in the blood from relapsing fever cases.

In certain acute specific infectious diseases caused by bacteria, the causative organisms may be detected on blood smears in given cases. Illustrations are *bacterium anthracis* in anthrax and streptococci, in severe cases of septicemia.

FINDINGS IN THE MORE IMPORTANT BLOOD DISEASES

*The Anemias*:

Anemias are usually classified as *primary*, the

\*This is the eleventh of a series of articles by Dr. King on the Clinical Laboratory.



causative factors of which are not known, and as *secondary* in which certain pathological changes take place in the blood as the result of disease processes. The term anemia implies a general impairment in the hemoglobin, the red cells and sometimes other constituents of the blood.

#### *Pernicious Anemia:*

This disease is characterized by the destruction of the red cells by an unknown hemolytic factor. The etiology of this disease is unknown. It often occurs in middle life and it is characterized by an insidious onset, the symptoms appearing so gradually that the true clinical condition is manifested relatively late in the course of the disease. The differential diagnosis of progressive pernicious anemia from chlorosis and from severe secondary anemias, is important. The typical pernicious anemia blood specimen presents a microscopic picture which is diagnostic.

The following are the important blood changes:

*Red cells*, markedly diminished in number from 750,000 to 3,500,000. The percentage of *hemoglobin* is low, but the hemoglobin diminishes much more slowly than the number of red cells. The *color index* is high, practically always one plus. The number of leukocytes is diminished, although in many cases a *lymphocytosis* is found. *Myelocytes* may be present. The resistance of the red cells, according to the *fragility test*, is increased. *Poikilocytosis*, and *anisocytosis*, *polychromatophilia* and *basophilic stippling* are present, nucleated red cells may be found. The presence of *megaloblasts* and *polychromatophilia* indicates hyperactivity of the bone marrow. The *blood platelets* are diminished in number.

#### *Chlorosis:*

The blood findings in this disease in comparison with pernicious anemia are as follows: Reduction of the *red cells* very gradual, a marked reduction in number is not characteristic; the red cell count may run 3,000,000 to 4,000,000. *Hemoglobin* is markedly low, *color index* is always low, usually from 0.5 to 0.7. *Blood platelets* are sometimes increased in number. *Poikilocytosis* may be present. On the stained film, many red cells show large pale areas; some are almost devoid of hemoglobin. *Anisocytosis* may be present, nucleated red cells are not often found. *Polychromatophilia* is not marked. The differential count is not uniform, and as a rule the leukocytes give no clue as to the condition.

In connection with the blood findings, it is

of course important to note that chlorosis is usually found between the ages of fifteen and twenty-five; although recurrences may occur in later life.

#### *Secondary Anemias:*

Secondary anemias occur during chronic diseases, during pregnancy, as a result of poisoning, after hemorrhage and as a result of infections. The *red cells* are reduced in number, the *hemoglobin* is reduced, in mild cases no other changes are noticed; in more advanced cases a greater reduction of erythrocytes and hemoglobin is found. *Poikilocytes* and *anisocytes* usually not present. *Polychromatophilia* may be present in severe cases. *Nucleated reds* may be found, depending upon the case. The changes in the leukocytes are variable, if present, and are not diagnostic. Eosinophiles may be decreased or absent.

There are certain other anemias found with less frequency, as follows:

*Von Jaksch Anemia:* This is a condition of infancy and early childhood. The spleen is enlarged; the *red cells* are markedly diminished; the *hemoglobin* is diminished but not in proportion to the reduction of red cells, therefore the *color index* is usually one plus. *Anisocytosis*, *polychromatophilia*, *basophilic stippling*, *nucleated red cells*, *megaloblasts* and *myelocytes* may be found. *Leukocytosis* is present.

*Banti's Disease:* In this condition the spleen is enlarged and the course of the disease is more or less chronic. The *red cells* and *hemoglobin* are reduced; the *resistance* of the red cells is increased and *leukopenia* is present.

#### *The Leukemias:*

In leukemia there are certain pathological changes in various tissues of the body. The liver and spleen become enlarged and a cellular hyperplasia occurs in the bone marrow; the lymph nodes and other lymphatic structures are enlarged. Several theories have been advanced in regard to the etiology of the leukemias. Various conditions of leukemia are observed following intestinal intoxication, malaria, syphilis, tuberculosis, rachitis and other infectious diseases. In spite of the coincidence of leukemia during or following such diseases, the infectious origin of the leukemias is not taken seriously and they are now regarded as primary diseases of the blood producing organs.

#### *Chronic Lymphatic Leukemia:*

The leucocyte count is excessively high, averaging above 100,000 per c.m. Differential count shows a high percentage of lymphocytes, usually

ninety per cent or more of the total number of leucocytes consisting of lymphocytes. Most of these are small lymphocytes, but in some cases lymphoblasts may be found. The red cells may be somewhat reduced in number and in some cases the blood plates may be increased. In extreme cases the blood may have a peculiar white or whitish red appearance, owing to the great increase in leucocytes.

*Acute Lymphatic Leukemia:*

The results of blood examination do not differ from those found in chronic lymphatic leukemia except that on account of the sudden onset with symptoms of acute condition the leucocyte count increases very rapidly, sometimes up to 500,000 per c.m. Many large lymphocytes are present in acute cases.

Nucleated red cells may occasionally be found.

*Chronic Myelogenous Leukemia:*

This is more commonly found than other forms of leukemias. The onset of the disease is gradual and one of the first indications along with the appearance of abdominal tumor may be a creamy white condition of the blood, due to leucocytosis. The leucocyte count is high; sometimes reaching 1,000,000 per c.m. All types of the leucocytes may be increased but the conspicuous feature is usually the presence of many myelocytes, or myeloblasts. Basophiles are usually markedly increased. Nucleated red blood cells may be found.

*Acute Myelogenous Leukemia:*

The blood findings are similar to those of chronic myelogenous leukemia. The condition is not common and is characterized by a rather sudden onset and rapid course, usually with fatal termination. The white count increases rapidly; myeloblasts may frequently be found; normoblasts and sometimes megaloblasts are present.

*Hodgkin's Disease (Pseudoleukemia):*

On account of the enlargement of the superficial lymphatic glands and changes in the blood picture, this disease is sometimes confused with leukemia. The condition in the blood, however, is similar to that found in a secondary anemia, with the additional finding of a leucocytosis during the febrile periods. The leucocytosis rarely exceeds 15,000 to 20,000; the red cells are reduced and the hemoglobin is diminished. The results of the differential count usually shows an increase in polynuclear leucocytes and a mild eosinophilia.

## BOOK NOTICES

THE BIOLOGY OF DEATH. Being a series of lectures delivered at the Lowell Institute in Boston in December, 1920. By Raymond Pearl. Monographs on experimental biology. Cloth, price \$2.50 net. Pages 275, with 64 illustrations. Philadelphia: J. B. Lippincott Company, 1922.

From the realm of experiment and research in biology, Pearl calls attention to the immortality of tissue, the viability of life built up in systems as an organic unit. The table of death rate, biologically classified, is an education to those of us who are signing death certificates. I am wondering whether there will not be a shift from the respiratory to the circulatory diseases as the tables go on through the decades. The death rate according to the embryological layers is instructive. The break in structures arising from endoderm is strikingly shown.

The chapter on inheritance versus environment as the dominant factor in duration or longevity, the use of the *drosophylla melanogaster* to drive home the argument reads like a romance.

It is in the summary of the results that the physician may obtain the most practical, as well as the most disquieting, facts for healthy readjustment of some of his ideas of his usefulness, as well as his daily philosophy. The author's remarks on public health should be idiomized and blazoned in every public and "social service" worker's mind. The asymptotic curves of population of the United States, France, and Serbia, and *drosophylla* stand out in graphic eloquence to the possibility of the biometrics testifying to the immutability of the biologic laws of fertility and mortality, and these are dependent on the supply of food.

To the busy doctor who has to put up with all sorts of people and views it is like a refreshing draught.

—HENRY L. ULRICH, M.D.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures and especially prepared articles. Edited by Henry W. Cattell, M. D. Volumes II, III, IV, Series 33, 1923. J. B. Lippincott Company, Philadelphia and London.

These clinics present a very wide range of material. Each is of vital worth and has thorough treatment. In medicine, in surgery, general or special accurate matter is given and with scholarly treatment. Diagnosis and treatment of disease is given the larger space. Diseases of metabolism; infections; allergic diseases; chorea; diseases of mind and will; surgery; and endocrine disorders each has the appropriate place and space.

Some of the topics are treated by symposia; the bibliography is voluminous and worthy, the authors very carefully digest current articles and data.

As each of the writers is an authority even beyond his topic and his homeland, our appreciation could not be other than hearty and general. The pleasure and profit of their perusal has been great to the reviewer.

Few and minor are the errors of type.

—GEO. D. HAGGARD, M.D.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

MAY 1, 1924

## THE MINNEAPOLIS HEALTH EXPOSITION

The arrangements for the opening of the Minneapolis Health Exposition have been practically completed. The number of exhibitions from the various organizations in the city are outlined, although the entire space of the Armory has not been sold out; there are two or three booths which are still open for commercial exhibits, however, and it is hoped that they will be occupied before the Exposition is opened.

This undertaking has been a tremendous one, and has called for numerous meetings to which the physicians of the Hennepin County Medical Society have generously responded. Not only have they given their time to committee work, but they have given an enormous amount of time, considered in hours, in going about among the various exhibitors in order to make the whole unit complete. The University of Minnesota, with its various activities, will occupy the largest space in the Armory building, exhibiting all phases of University work, and, naturally, the medical work of the University will be featured.

One cannot realize unless when in attendance on the committee meetings what it means to get up such a show. All the various health agencies and activities which are allied to medicine or to health education have done their part cheerfully and willingly, and it is confidently expected that the Exposition will open with a grand exhibition

of out-of-door life, provided, of course, the weather man is decent and willing to help open the Exposition. The Parade Grounds will be occupied on Saturday afternoon, May third, with all sorts of out-of-door sports, and the blare of bands will be heard all over the Parade. It is expected that this out-of-door exhibition will attract a great many visitors to the Exposition who have not understood what it means, not only to Minneapolis, but to the Northwest.

The physical examination of patients is still one of the interesting features, and it is understood that this will be carried on with the strictest attention to the ethics of medicine. It is no advertising propaganda or anything of that sort, nor is it a scheme to advance a certain number of doctors, but it is intended to advance public health. If that idea is kept in mind there will be no difference in opinion as to the value of the Exposition.

The daily papers have been very cordial in their frequent and extended references to the Exposition and its aims, and each of the Sunday issues devoted a part of a section of the paper to the exhibitors and their booths.

Speakers have been arranged for. One or two of them are sent out by the American Medical Association and others who are known nationally as men interested in public health, and yet their programs are not to be so technical but what they will be generally comprehended. There is to be a time limit put on all of the speakers and all of the activities so that no one will monopolize the attention of the audience, whether in the Armory hall proper or in the Annex where the interesting athletic sports are exhibited or where the moving-picture shows are given or where the contest for prizes in regard to public health measures will be bestowed.

There has been a very gratifying spirit of co-operation among medical men, and it recalls to mind what Kipling says:

"It ain't the individual  
Nor the army as a whole,  
But the everlasting team-work  
Of every blooming soul."

### "WHAT DOCTOR SHALL WE CALL?"

This must be a question which is frequently asked by the layman, and sometimes it is unquestionably a very difficult matter to decide. There are so many "doctors" now that it must be a very embarrassing thing, sometimes, to know what to do; and, while it is presumed that the

majority of people do not always differentiate between "doctors" because there are a host of men who call themselves "doctors" and who use the term "doctor" yet who, perhaps, belong to a cult, one would not necessarily call a chemist in as a practising physician, and yet he may be known as a "doctor"; or a physiologist who teaches physiology and is entitled to put "Dr." in front of his name and yet is not a graduate in medicine. Recently the discussion has come up as to whether a chiropodist should be called a doctor, and yet he does use the term with the full knowledge that he is practising ethical chiropody. True, he is educated largely in regard to disorders of the feet, and because he belongs to a national or a state organization which is formed under the auspices of reputable chiropodists he attaches the title "Dr." to his name; but many physicians object to his taking this privilege. But if we are going to object to a class of people known as chiropodists, what are we going to do with the multiplicity of people who are not doctors in any sense of the word, the chiropractors for instance, who do not hesitate at all to use the term "doctor" nor do the diploma-mill men, who have bought their diplomas—they style themselves as doctors. No wonder the public is uncertain.

The New York State Department of Health has recently broadcasted, by radio, some information on this subject, and it cites the family who is moving from one town to the other, or is compelled for some reason to seek a new medical advisor. Dr. P. B. Brooks, Deputy Commissioner of Health, who is responsible for the advice given, says that this question may be a momentous one. "Life and health are possessions too precious to warrant putting them in the hands of incompetents. It is not always easy to make a wise selection, and the following rules will help one to act wisely:

1. Be sure the physician is licensed.
2. Make certain he is a doctor of medicine.
3. Avoid the sensationally advertised doctor.
4. Do not be impressed by the elaborateness of offices.
5. Membership in a society indicates he is reputable.
6. Does he take medical journals?

And, finally, having chosen your doctor, remember that even though a doctor, he is still human and not a superman. Do not expect him to do the impossible. As an old liveryman used to say about horses, when they were taken to him for opinions as to their physical soundness

and probable temperamental qualities: 'Doc, you must remember there ain't none of 'em perfect.'

Now, this is good advice to follow, and if we could only get it capitalized and get it printed in the daily press it would help people very materially. Then, too, it should be considered, when these discussions are being held, that public health activities sometimes lead to a conflict between these bodies and the medical profession, and often there is no definite demarkation made between the legitimate scope of the public health activities and the rights and privileges of physicians. This sometimes causes serious trouble in small towns, and the doctors who are in active practice resent the efforts of the man who is engaged in public health work because they either attempt a diagnosis or suggest a line of treatment that may not be in harmony with the physician's idea. Then there is the free clinic, which is a very fertile ground for the development of disaffection. Some of the troubles that are continually springing up in cities are through the conducting of free clinics for various disorders and thus disturbing the physician's rights. So there are many things to investigate when a new family wants a doctor in a new town, or is obliged to call someone else for good and sufficient reasons.

## NEWS ITEMS

Dr. J. C. R. Charest has moved from Minneapolis to Murdock.

Dr. I. H. Dahl, of Thor, Iowa, has moved to Becker, Minn.

Dr. F. K. Brandenburg has moved from New Richland to Crystal Bay.

Dr. C. M. Niles has moved from Cathay, N. D., to Forest Lake, Minn.

The Eitel Hospital of Minneapolis graduated a class of twenty-four nurses last week.

Another death from smallpox was reported by the Minnesota State Board of Health last week.

Six health clinics were given the past week in Steele County by the County Public Health Association.

Dr. Charles E. Proshek, formerly of New Prague, has located in Minneapolis, with offices in the La Salle Building.



Dr. and Mrs. J. A. Evert, of St. Anthony Park, St. Paul, have returned from a month's trip to New York City and Boston.

Dr. Paul W. Giessler, of Minneapolis, was married this week to Miss Catherine Hughes Boetler, also of Minneapolis.

About one hundred women are taking the annual short course in home nursing now in session at the University of Minnesota.

Dr. Charles E. Barker, who was President Taft's physician, is lecturing on health subjects in Duluth before schools, civic health clubs, etc.

The new unit of the Fairview Hospital of Minneapolis was completed and opened last month. The hospital now has a capacity of 225 beds.

Dr. A. A. Rankin has moved from Waconia to Brownton, where he takes over the practice of Dr. J. O. Engstand, who has moved to Bemidji.

The five free vaccination stations of Duluth have been closed. Twelve or thirteen thousand people, including school children, were vaccinated in these stations.

Dr. Joseph Moss, Pathologist of the Medical College of the University of North Dakota, was married last month to Mrs. Fannie Fishman, of Grand Forks, N. D.

The programs of Minneapolis Clinic Week and the Southern Minnesota Medical Association, and an editorial on the Minneapolis Health Exposition appear elsewhere in this issue.

Dr. C. L. Bury, of Parker, S. D., has taken over the hospital formerly conducted by Dr. F. E. Fyle at Geddes, S. D., who disappeared last December and has not been heard from since.

The South Dakota State Medical Association holds its annual meeting on the 20th and 21st of this month at Mitchell, S. D. The chief part of the program will be given over to dry clinics.

Dr. M. M. Williams, of Toronto, Canada, has been appointed head of the Division of Child Hygiene of the North Dakota Department of Public Health, to succeed Dr. L. E. Boutelle.

National Hospital Day (May 12) will be generally observed in the Northwest. This is also the 104th birthday of Florence Nightingale, whose fame is due to hospital service and nursing accomplishment.

Miss Charlotte M. Hanson has been appointed public health nurse of Rochester. She is a grad-

uate of the Northwestern Hospital Training School, of Minneapolis, and took the University course in public nursing.

Dr. Charles M. Jackson, Professor of Anatomy, University of Minnesota, was elected a member of the Executive Committee of the American Association of Anatomists at the annual meeting of the Association last month.

The U. S. Public Health Service announced that the per diem cost per patient in the U. S. Marine Hospitals in 1923, was \$4.08, which of course is much less than the cost for like service in private or public civilian hospitals.

The Minnesota Public Health Association has sent two nurses, each having a Ford coupe, fully equipped, to the northern part of the state to do demonstration work in the rural districts. One of the autos carries a moving picture outfit.

At the annual meeting of the Stearns-Benton County Medical Society, held at St. Cloud last month, the following officers were elected: President, Dr. C. B. Lewis; vice-president, Dr. C. S. Sutton; secretary-treasurer, Dr. J. N. Libert, all of St. Cloud.

The Mitchell (S. D.) District Medical Society at its monthly meeting in April passed a resolution favoring a revision of the State fee bill in medical compensation cases, and the delegates were instructed to take the matter up at the State Association meeting.

The South Dakota State Medical Association will not follow this year its long-established custom of having a meeting of the Council on the day or evening preceding the two days of the scientific section. The meeting will be confined to two days, May 20 to 21.

The 42 eight-grade pupils of the Gorman School of St. Paul drank 57 bottles of milk each school day in the month of March. The size of the bottles, whether pint, quart, or gallon, is not stated in the daily paper making the statement. The teacher says the members of the class are unusually healthy.

The American Association for Thoracic Surgery will meet in Rochester on June 5, 6, and 7. Papers will be presented by men who are authorities in their particular fields. On June 7 there will be an operative clinic and a dry clinic, and on June 5 in the evening there will be a joint meeting with the American Society of Clinical Pathologists.

The Northwestern Medical Officers Association of the World War will hold a meeting in

Minneapolis on May 6 in connection with Clinic Week. Dinner will be served at 6:30, and an entertainment will follow. Every medical officer who did service in the World War is eligible to membership in the Association and is urged to attend the meeting.

According to a survey of 309 families in Minneapolis, made by the Graduate School of the University of Minnesota, 77 per cent of the heads of families read with interest the health articles in the daily press. As such articles are prepared, at least in most papers, by able medical men, they are a great help to both the public and the medical profession.

A Mitchell (S. D.) paper makes an extended complimentary notice of the annual report of the Bartron Hospital of that city, especially pointing out the value of such an institution to the public. The capacity of the hospital is 85 beds. Marked physical improvements have been made during the past year, and the Hospital is now on the accredited list of the American College of Surgeons. Dr. Hans Goldbach, of Vienna, has joined the staff as a specialist in internal medicine and skin diseases. Dr. Bartron is a graduate of the Medical School of the University of Minnesota, class of '06.

The Sioux Valley Medical Association will hold its summer meeting, which is its annual meeting, at Sioux Falls, S. D., the second week in July. The Seventh District Medical Society of South Dakota will be the hosts, and will provide generous entertainment. Dr. T. A. Stevens, of Sioux Falls, is chairman of the Committee on Clinics, and will be pleased to hear from members of the Association who will present cases before the meeting. Dr. G. G. Cottam, of Sioux Falls, is chairman of the Committee on Arrangements, and Dr. R. M. Waters, of Sioux City, Iowa, is Secretary of the Association.

#### PROGRAM OF THE MAY MEETING OF THE STAFFS OF LYMANHURST AND PARKVIEW HOSPITALS

The following is the program to be presented before the Staffs of the Lymanhurst and Parkview Hospitals on Tuesday evening, May 27, at 7:00 o'clock at the Lymanhurst School:

Twenty Years Observation of Tuberculosis Control. By Dr. E. L. Tuohy, President of the St. Louis County Tuberculosis Commission, Duluth, Minn. Report of von Pirquet Tests in 1,500 Children in a Minnesota Rural Community. By Dr. S. A. Slater, Superintendent, Southwestern Minnesota Sanatorium, Worthington, Minnesota.

All persons interested in tuberculosis work are cordially invited to attend this meeting.

#### PROGRAM OF THE SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The Association will hold its annual meeting this year at Mankato, in a one-day session, on Monday, May 19.

##### Morning Session 8:00 A. M.

##### Held at Elk's Hall

1. Radium in Benign Conditions of the Nose and Throat, Dr. Laura A. Lane, Minneapolis.
2. Laryngeal Obstruction in Acute Infectious Disease, Dr. S. W. Adler, Winona.
3. Intussusception in Infancy, Dr. W. B. Grise, Austin.
4. The Rôle of Diet in the Treatment of Disorders of Older Children, Dr. Frederic W. Schlutz, Minneapolis.
5. Hypertension: An Index to Toxemia of Pregnancy, Dr. R. D. Mussey, and Dr. L. M. Randall, Rochester.
6. Some New Problems in Obstetrics, Dr. W. H. Condit, Minneapolis.
7. Factors in Operability of Acute Appendicitis, Dr. W. P. Finney, Rochester.
8. Pre-operative and Post-operative Care of Surgical Patients, Dr. A. E. Sohmer, Mankato.
9. Treatment of Nasal Deformities, Dr. G. B. New, Rochester.
10. Osteochondral Grafts to Skull, Dr. A. M. Hanson, Faribault.

##### Luncheon 12:15 P. M.

##### Afternoon Session 1:45 P. M.

##### Held at Elk's Hall

11. Foreign Bodies in the Esophagus and Air Passages, Dr. P. P. Vinson, Rochester.
12. Pneumonia and Its Treatment with Pneumococcus Antigen, Dr. D. B. Pritchard, Winona.
13. Clinical Aspects of Coronary Sclerosis, Dr. F. A. Willius, Rochester.
14. Hip Fractures, Dr. A. G. Liedloff, Mankato.
15. Injuries of the Carpal Bones, Dr. Emil S. Geist, Minneapolis.
16. Treatment of Burns, Dr. Arthur Collins, Duluth.
17. The Value of Proctology in General Practice, Dr. L. A. Buie, Rochester.
18. X-Ray Therapy on Some Common Skin Diseases, Dr. A. J. Wentworth, Mankato.
19. Surgical Treatment Non-Tubercular Pulmonary Suppuration, Dr. C. A. Hedblom, Rochester.
20. Rôle of Iodine in Prevention of Goitre, Dr. Henry S. Plummer, Rochester.

##### Evening Session 8:00 P. M.

##### At Masonic Temple

##### Presidential Address

1. A Quarter Century in the Medical Profession, Dr. F. P. Strathern, St. Peter.
2. Reconstructive Surgery, Dr. Dean Lewis, Chicago.
3. Australia, Dr. W. J. Mayo, Rochester.



## PROGRAM OF MINNEAPOLIS CLINIC WEEK

May 6, 7, 8, and 9, 1924

## Program for Dry Clinics

Tuesday and Wednesday, May 6 and 7, Conducted at the Unitarian Church, Eighth St. and La Salle Ave., one block from Radisson Hotel.  
Demonstrations twenty minutes

Tuesday, May 6th, 9 A. M.

DR. JAMES H. JOHNSON, Chairman

Retroperitoneal Tumors. Lantern slide demonstration, Dr. Stephen Baxter.

Present-day Treatment of Diabetes: Severe symptoms from Movable Kidney. Differential Diagnosis: Presentation of cases, Dr. Moses Baron.

Demonstration of Ambulatory Types of Idiopathic Pernicious Anemia, Dr. J. P. Schneider.

Acrodermia and Some Common Forms of Infectious Skin Diseases. Demonstration of cases, Dr. F. C. Rodda and Dr. John Butler.

Tuesday, 2 P. M.

DR. A. A. ZIEROLD, Chairman

Pre-operative Treatment for Hypertrophy of the Prostate. Demonstration of cases, Dr. G. T. Thomas.

Diseases of Pancreas and Diabetes. Demonstration of cases, Dr. J. G. Cross.

Sacroiliac Spine. Fracture of Spine without Paralysis, Drs. Geist and Henry.

Functional Nervous Diseases in Childhood. Presentation of cases, Dr. E. J. Huenekens.

Medical Work of the U. S. Veterans' Bureau, Dr. H. L. Williams.

Wednesday, May 7th, 9 A. M.

DR. R. C. WEBB, Chairman

Case Illustrations of Results in Diabetes, Dr. D. McCarthy.

Surgery of the Upper Abdomen under Local Anesthesia. Demonstration of cases, Dr. Stanley Maxeiner.

Toxemia of Pregnancy Signalized by Nausea and Vomiting, Dr. R. T. LaVake.

Sequelæ of Head Injuries with Case Demonstration, Dr. J. C. Michael.

Demonstration of Cases Operated on for Salpingitis. Demonstration of Case of Membranous Pericollitis. Lantern slides, Dr. A. E. Benjamin.

Wednesday, May 7th, 2 P. M.

DR. JAMES M. HAYES, Chairman

Dementia Precoc. Posterior Spinal Paralysis. Dr. W. A. Jones.

Present-day Treatment of Diabetes in Children. Presentation of Cases, Dr. N. O. Pearce.

Intra-ocular Tumors. Demonstration, Dr. Walter Camp.

Demonstration of Routine Treatment of Fractures and Standardized Equipment, Drs. Wilcox and White.

## AT GOLD ROOM OF RADISSON HOTEL

Thursday, May 8th, 2 P. M.

DR. GEORGE R. DUNN, Chairman

Some Problems Associated with Plastic Surgery, Demonstration of cases, Dr. R. E. Farr.

Plastic Nasal Surgery. Demonstration and presentation of cases, Dr. J. D. Lewis.

Hypophyseal Tumors, Dr. J. F. Corbett.

Brain Tumors. Lantern slide demonstration with case histories, Dr. A. S. Hamilton.

Friday, May 9th, 2 P. M.

DR. WILLARD D. WHITE, Chairman

Pyelitis and Pregnancy. Value of Ruben's Test in Sterility, Dr. F. L. Adair.

Surgery of the Stomach and Rectum. Presentation of cases, Dr. A. C. Strachauer.

Unusual Case of Splenic Anemia—Splenectomy. Presentation of case, Dr. E. D. Anderson.

Tumors Complicating Pregnancy. Demonstration of cases, Dr. J. C. Litzenberg.

## Tentative Program for Hospital Clinics

## ABBOTT HOSPITAL

Thursday, May 8th

9:00-10:00 A. M.—Medical Bedside Clinic: Spleen, liver, and blood disease. Dr. J. P. Schneider.

10:00-11:00 A. M.—Medical Clinic. Dr. J. F. Avery.

9:00 A. M.—Operative Clinic. Rectal, Dr. W. A. Fansler.

9:00-10:00 A. M.—Surgical Clinic. Dr. A. W. Abbott.

10:00-11:00 A. M.—Surgical Clinic. Dr. Jas. A. Johnson.

Friday, May 9th

10:00-11:00 A. M.—Medical Clinic. Dr. J. F. Avery.

9:00-10:00 A. M.—Medical Clinic. Dr. George Douglas Head.

9:00-10:00 A. M.—Surgical Clinic. Dr. A. C. Strachauer.

10:00 A. M. 12:00 M.—Pediatrics. Dr. N. O. Pearce.

10:00 A. M. 12:00 M.—Pediatrics. Dr. Rood Taylor.

10:00 A. M. 12:00 M.—Pediatrics. Dr. R. C. Rodda.

10:00 A. M. 12:00 M.—Pediatrics. Dr. E. F. Robb.

## DEACONESS HOSPITAL

Thursday, May 8th

8:00 A. M.—Surgical Clinic. Dr. Daniel A. MacDonald.

9:00 A. M.—Surgical Clinic. Dr. C. A. Witham.

## EITEL HOSPITAL

Thursday, May 8th

9:00 A. M.—Surgical Clinics. Dr. Geo. G. Eitel.

9:00 A. M.—Surgical Clinics. Dr. E. C. Robitshek.

Friday, May 9th

9:00 A. M.—Urology: Diagnosis and Surgery. Dr. Gilbert J. Thomas.

## FAIRVIEW HOSPITAL

Thursday, May 8th

8:00 A. M.—Diagnostic and Surgical Clinic. Dr. Ivar Sivertsen.

Friday, May 9th

9:00 A. M.—12:00 M.—Diagnostic and Surgical Clinic. Dr. N. H. Sheldrup.

Medical Clinic. Dr. F. H. Hacking.

## MINNEAPOLIS GENERAL HOSPITAL

Thursday, May 8th

8:00-11:00 A. M.—General Surgery. Dr. Richard R. Cranmer. "B"

Surgical Clinic. Dr. Edward Moren. "B"

Surgical Clinic, Operative. Dr. Stanley R. Maxeiner. "B"

8:00-10:30 A. M.—Gynecology and Obstetrics. "B"

1. Hysterectomy—Fibroid of Uterus; 2. Operation for Displacement of Uterus; 3. Pelvic Congenital Deformities in Female. Dr. A. E. Benjamin. "B"

10:00 A. M. 12:00 M.—Pediatrics: Infant Feeding. Dr. E. J. Huenekens.

Clinic Room: Gynecology "B";

Genito-Urinary Clinic, Operative. Dr. Oscar Owre.

**Friday, May 9th**

8:00-11:00 A. M.—Operative Clinic. Dr. J. F. Corbett, "A."

Operative Clinic. Dr. Archæ E. Wilcox. "A"

Operative Clinic. Dr. A. A. Zierold, "A"

Operative Clinic. Dr. Frederick Olson, "A"

8:00-10:00 A. M.—Gynecology and Obstetrics. Dr. F. L. Adair. "A"

Gynecology and Obstetrics, Operative. Dr. Jalmar F. Simons, "A"

Gynecology, Operative. Dr. R. T. LaVake, "A"

10:30 A. M. 12:00 M.—Clinic Room "A" Gynecology and Obstetrics.

Eye, Ear, Nose and Throat, Operative Clinics. Dr. J. D. Lewis.

#### NEW ASBURY HOSPITAL

(9th Ave. So. and 15th St.)

**Thursday, May 8th**

10:00 A. M.—Surgical Clinic: Cholecystectomy, Local Anesthesia. Dr. Louis Dunn.

**Friday, May 9th**

10:00 A. M.—Hysterectomy, Local Anesthesia. Dr. Louis Dunn.

9:00 A. M.—Clinical Hematology: (1) Anemia of Pregnancy; Pernicious Anemia; Simple anemia; (2) Polycythemia Vera (Osler's Disease); (3) Purpura Hemorrhagica. Dr. F. H. F. Schaff.

#### NORTHWESTERN HOSPITAL

**Thursday, May 8th**

9:00 A. M.—Surgical. Dr. Arthur T. Mann.

8:00 A. M.-12:00 M.—Eye, Ear, Nose, and Throat. Drs. Horace Newhart, Walter E. Camp, and Erling W. Hansen.

**Friday, May 9th**

9:00 A. M.—Surgical. Dr. Arthur T. Mann.

8:00 A. M.—Eye, Ear, Nose, and Throat Clinic, Surgical. Dr. G. Elmer Strout.

#### ST. BARNABAS HOSPITAL

**Thursday, May 8th**

9:00 A. M.-12:00 M.—General Surgery. Dr. John O. Taft.

9:00 A. M.—Eye, Ear, Nose, and Throat. Dr. G. Elmer Strout.

Gynecology. Dr. Jalmar H. Simons.

8:30 A. M.—Surgical Clinic. Dr. Clyde A. Undine.

**Friday, May 9th**

9:00 A. M.-12:00 M.—General Surgery. Dr. John O. Taft.

#### ST. MARY'S HOSPITAL

**Thursday, May 8th**

8:30 A. M.—Surgical Clinic (novocaine anesthesia). Dr. A. A. Laurent.

9:00 A. M.—Surgical Clinic. Dr. Archæ E. Wilcox.

9:00 A. M.—Surgical Clinic. Demonstration of operations under local anesthesia. Dr. Robert Emmet Farr.

**Friday, May 9th**

9:00 A. M.—Surgical Clinic. Demonstration of cases under local anesthesia. Dr. Robert Emmet Farr.

#### SWEDISH HOSPITAL

**Thursday, May 8th**

10:00 A. M.—Radium Therapy. Dr. Charles R. Drake.

#### THOMAS HOSPITAL

**Thursday, May 8th**

10:00 A. M.-12:00 M.—Diagnosis and Treatment of Pulmonary Tuberculosis. Dr. Walter J. Marckley.

#### UNIVERSITY HOSPITAL

**Thursday, May 8th**

9:00-10:30 A. M.—Surgery. Dr. A. L. Cameron, Room 1.

Urology. Dr. F. R. Wright, Room 2.

Obstetrics and Gynecology. Dr. J. C. Litzenberg, Wards.

10:30 A. M.-12:00 M.—Surgery. Dr. A. C. Strachauer, Room 1.

Gynecology. Dr. H. M. N. Wynne, Room 2.

2:00-4:30 P. M.—Pediatrics. Dr. F. W. Schlutz, Wards.

Medicine. Dr. S. M. White, Wards.

**Friday, May 9th**

9:00-10:30 A. M.—Operative Gynecology. Dr. T. W. Weum.

9:00-10:30 A. M.—Surgery. Dr. A. A. Law, Room 1.

9:00-10:30 A. M.—Ophthalmology. Operative Clinic. Dr. W. R. Murray.

10:30 A. M.-12:00 M.—Ophthalmology and Otolaryngology. Dr. Howard S. Clark, Room 2.

2:00-4:30 P. M.—Pediatrics. Dr. F. J. Rodda, Wards.

Medicine. Dr. A. H. Beard, Wards.

#### UNIVERSITY DISPENSARY

**Thursday, May 8th**

10:00 A. M.—Neurological Clinic. Dr. J. C. Michael.

Obstetrical and Gynecological Diagnosis. Dr. R. T. LaVake.

**Friday, May 9th**

1:00 A. M.-2:30 P. M.—Diseases of the Heart. Dr. Thomas Ziskin.

#### U. S. VETERAN'S BUREAU, Dist. No. 10

At Keith-Plaza Bldg., 1700 Hennepin Ave.

10:00 A. M.-12:00 M.—Cardiac Diagnosis. Dr. Thomas Ziskin.

Tuberculosis (Diseases of the Chest), Dr. Frank H. Hacking.

Eye, Ear, Nose, and Throat. Dr. John W. Lee.

X-ray Demonstrations (Pulmonary Tuberculosis). Dr. W. A. Monnich.

Diagnosis of Gastro-Intestinal Diseases. Dr. W. S. Anderson.

Physiotherapy: Treatment, Indications, and Limitations. Dr. J. M. Hayes.

Nervous and Mental Diseases: (1) Encephalitis with Parkinsonian Syndrome; (2) Pituitary Disease with Obesity; (3) Hematomyelia with Progressive Degenerations. Dr. A. G. Dumas



**U. S. VETERANS' HOSPITAL No. 68**  
(Asbury Hospital—9th Ave. and 9th St. So.)

**Friday, May 9th**

10:00 A. M.—12:00 M.—Surgical Tuberculosis: Local Anesthesia in Tuberculosis. Bone Surgery in Tuberculosis. Surgery in Pneumo-thorax and Pneumo-peritoneum. Dr. Stanley R. Maxeiner. Pulmonary Tuberculosis. Dr. Alexander Josewich. Tuberculous Laryngitis. Tonsillectomies under local anesthesia: Method, Dissection and Sluder. Dr. J. F. Curtin. Laboratory Findings in Tuberculosis. Insulin Treatment for Diabetes. Dr. Floyd Grave. X-ray Demonstrations. Dr. W. A. Monnich. Physiotherapy Demonstrations. Dr. F. A. Cochran.

**EXECUTIVE COMMITTEE**

W. A. JONES, M.D., Chairman  
G. ELMER STROUT, M.D., Secretary  
N. O. PEARCE, M.D.,  
C. B. WRIGHT, M.D.  
A. A. ZIEROLD, M.D.

DR. W. A. JONES,  
Chairman of the Executive Committee,  
Clinical Section of the Hennepin  
County Medical Society.  
DR. G. ELMER STROUT,  
Secretary-Treasurer.

**Minneapolis Health Exposition**

**May 3-10**

Under the Auspices of the Hennepin County Medical Society.

**Static Machine Wanted**

Mica preferred. Give price and condition of machine. Address 86, care of this office.

**Good Opening for a Physician**

In a Minnesota City of over 8,000 population. Good hospital facilities. Address 81, care of this office.

**Temporary Work Wanted**

By a competent physician licensed in Minnesota and North Dakota. Can give the best of references. Ten years experience; available at once. Address 79, care of this office.

**Minneapolis Office Space to Sublet**

Very desirable office space at 323 LaSalle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrahe. For information call at the office or telephone Main 3220.

**Good Location for a Physician**

Doctor's office on prominent corner over drug-store in new residential district of St. Paul. Price of office and reception-room furniture about \$500. Address 85, care of this office.

**Practice for Sale in Minnesota**

In town of 5,000, county-seat. Railroad town. Only four other active physicians. For price of equipment only. Must act quickly. Reason for selling sickness. Scandinavian physician preferred. Address 83, care of this office.

**Physician's Office in Minneapolis for Rent for Morning Hours**

I will rent my office in the LaSalle Building for the morning hours at a very reasonable rental. Please call at 341 La Salle Building.

**Fine South Dakota Practice for Sale**

Unopposed practice of \$8,000 in town of 600 in rich farming country in Eastern South Dakota. \$2,000 for office outfit and introduction. Address 78, care of this office.

**Physician Wanted**

To take over a practice in a good South Dakota town in a large territory. Good man can earn \$10,000 a year. Excellent opportunity for a young man. No investment required. Give qualifications and references in first letter. Address 80, care of this office.

**Physician Wanted in North Dakota**

A young man preferred. For Center, N. D., the County-seat of Oliver County. No doctor now in County. Center has three churches and two banks. It is an up-to-date town. As health officer the doctor receives \$25 a month. Address Robert Dunn, Center, N. D.

**Physician Wanted**

In a town of 800 population in southeastern part of North Dakota. A big territory and a prosperous country. Mostly all Germans with a few Hollanders around. Doctor must be able to speak German. Give reference in first letter. A very good opening for the right kind of a man. Address Nick Renner, Jr., Strasburg, N. D.

**Minnesota Practice for Sale**

Will sell my practice as I am taking up special work. The practice is young yet, but without doing my own surgery I made over \$5,000 last year and collected 94 per cent. Practice ought to run \$7,000 or upwards next year on account of a new railroad being built into the town. Am anxious to close the deal at once. Address 76, care of this office.

**Assistantship Wanted**

Assistantship to a good busy surgeon or general practitioner is wanted by a recent Rush graduate. Have had nine months work in emergency industrial surgery while at school and fifteen months of one of best internships. Can speak Norwegian, and am in very good health, capable, and willing to work hard. Am confident that I can satisfy as to character, personality, and ability. I desire a position with a good future in a thriving city. Address 77, care of this office.

**Small Minnesota Hospital for Sale**

A small up-to-date hospital with surgeon's living quarters and offices on first floor and with hospital equipment, consisting of 8 hospital beds, operating-table, stand, sterilizer, chairs, and other appliances, on the second floor. This hospital is located in a small town surrounded by good dairy farms and a well-known summer resort only 57 miles from Minneapolis on the Soo Line. Property can be bought at a great sacrifice and on satisfactory terms. Competition easy. Telephone Geneva 6203 or write 607 La Salle Building, Minneapolis.

# THE JOURNAL-*THE* LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 10

MINNEAPOLIS, MAY 15, 1924

Per Copy, 10c  
A Year, \$2.00

## THE TREATMENT OF LYE AND ACID BURNS OF THE ESOPHAGUS\*

BY FRITZ A. HABERLIN, M.D.

REMER, MINNESOTA

While taking a year's postgraduate course as assistant to Professor C. Roux, of Lausanne, Switzerland, the foremost pupil of the late Swiss surgeon, Professor Theod. Kocher, famous in this country for his Y-shaped gastro-enterostomy, I saw two cases of *acid* and *lye* poisoning. Professor Roux presented these cases to the students and showed such a simple and efficient treatment in contrast to the usual treatment which has generally resulted in strictures of the esophagus, that I became interested and resolved to publish his results. This was published in the *Schweizerische medizinische Wochenschrift* in the fall of 1919, in the form of a thesis. When Dr. Rishmiller asked me to bring a contribution to the meeting of the surgical staff of the Soo Line, I was glad to find an occasion to spread the knowledge of Professor Roux's method also in this country for the benefit of these unfortunate patients.

This treatment consists in the *immediate* and *permanent tubage* of the esophagus *after the accident*. The advantages are the following: The sound permits a thorough stomach lavage, preventing a long stay of the corrosive substance. If these substances are also toxic, for example, phenol, we prevent a prolonged absorption and thus an intoxication; if the substances are purely caustic, the chances are better that the burns are only superficial, and perforation of the stomach and perhaps cicatricial stenosis of the pylorus may be discarded. A second advantage of the per-

manent tube lies in the possibility to nourish the patient right from the start, thus sustaining his strength for some possible serious operation later on. An important point is that this treatment does not need a special instrument or a specialist; but the main point consists in the fact that in all cases treated by the permanent stomach tube we have never observed a subsequent cicatricial stenosis of the esophagus.

Since 1913 Professor Roux has employed this treatment in the surgical clinic of Lausanne. The aim of this paper is to convince you of the simplicity, the little danger, and the excellent results obtained with this method. The appreciation of this treatment consists essentially in the comparison with other methods, treating the sequela of these burns—cicatricial stenosis.

We shall first describe the technic used; then we shall discuss the results of several existing methods, their danger, their efficiency, and their durability; and we shall close our study with the hypothesis on the action of permanent tubage, confirmed by some experimental work on dogs.

On December 18, 1913, a case of fresh lye burn of the esophagus entered the hospital. Professor Roux introduced a stomach tube and left it in place. He presented the patient four weeks later to the county medical society and expressed his idea as follows: "After swallowing the caustic, the esophagus is so sore that the patient dreads to take food. The rest, the spasm, the reactional infiltration, the shape of the canal, the circular disposition of the cicatricial tissue in the submucosa; all this works together to make

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



the esophageal stricture a worse imitation of the urethral stricture."

Since then Professor Roux has used this method six times, and always with the same success,—sufficient nutrition and no cicatricial stenosis of the esophagus.

We proceed in the following manner: We choose an esophageal sound made of soft rubber (Nélaton), the diameter being from 8 to 11 mm.; for infants one may use two rubber catheters sewed together in order to obtain the necessary length. Then we grease the sound thoroughly and introduce it through the nose; the tube easily glides into the esophagus and down into the stomach, if the esophagus is not contracted by violent spasm. In the latter case it is safer to put the patient to sleep. Then we wash out the stomach thoroughly and fix the tube to the cheek with adhesive plaster and leave it in place for about three weeks. Evidently this is a rather disagreeable condition, but in a few days the patient tolerates the sound without pain or discomfort.

Abbreviated case reports are as follows: All patients presented about the same status; burn marks in the mouth and pharynx; intense dysphagia; burning pain in mouth, esophagus, and stomach; vomiting of bloody brown masses, and symptoms of shock; small, rapid pulse; and slight cyanosis.

CASE 1.—Man, aged 45, swallowed on December 17, 1913, a large mouthful of lye. Vomited several times bloody masses.

Treatment: Introduction of permanent sound through the nose. Course: Slight elevated temperature; nourishment through the sound.

December 31 he swallowed liquid alongside the sound.

January 17, swallowed bread alongside the sound. Sound was then removed.

January 19, left the hospital.

November 12, 1919, the patient writes that he eats everything. During 1919 he was controlled by the passage of a No. 46 tube, which failed to disclose any stricture.

CASE 2.—A girl, aged 22, swallowed on May 2, 1917, a mouthful of ammonium hydrochloride. Several vomitings.

Treatment: Introduction of permanent tube through the nose; stomach washed out. First week: temperature varies between 99°-101°.

On May 20 the patient swallowed dry bread alongside the sound and the sound was then removed.

The patient left the hospital on May 23 after the passage of No. 42 French.

The patient died nine months later in another hospital from chloroform anesthesia. Before this operation a large esophageal sound had been passed without difficulty.

CASE 3.—By mistake Miss E. C., aged 21, took twice the dose of a corrosive salt (sorrel salt?). She felt at once burning pain in the mouth and stomach; a reverse dysphagia ensued, and during the night she had chills and vomited black masses. On examination (Professor Barraud) several red and necrotic burn marks are seen on the soft palate, tonsils, and epiglottis. Patient has a hoarse voice and stridulous respiration.

January 7. Introduction of permanent tube through the nose under general anesthesia. Stomach lavage yielded blood and black masses.

January. 13. Two vomitings of fresh blood; temperature 101°, pulse 120 to 150.

January 14. Liquid food was given through the tube. Then the patient made rapid progress and soon swallowed alongside the sound. But on February 8 she commenced to vomit one-half hour after meals; which continued also after removal of the tube on February 18. The diagnosis of cicatricial stenosis of the pylorus was confirmed by the x-ray, and Gastro-enterostomy was done on February 21.

The patient left the hospital on May 8, having gained ten pounds in weight. She swallowed all food without difficulty and the largest sounds pass without pain.

A year and a half later the patient wrote that she had no trouble and could eat everything. No sound has been passed since she left the hospital.

CASE 4.—A woman, aged 25, tried to commit suicide on July 21, 1918, by drinking some HCl. Several vomitings. Introduction of permanent tube and stomach lavage which brought forth some bloody material.

July 23, temperature 100.6°; pulse, 110. General condition, bad. Several vomitings. During the night the patient removed the tube which was again replaced. July 26. Still some vomiting. General condition somewhat better. July 30. No vomiting, pulse and temperature, normal. Patient drinks alongside the sound, and on August 8 eats. Sound was removed on August 16. The patient swallowed without difficulty, left the hospital on September 9 after passage of a No. 43 esophageal sound. After one year the patient wrote that she ate everything without difficulty or pain. Sound not passed since she left the hospital.

CASE 5.—On June 12, 1919, a girl, aged 20, drank several swallows of concentrated nitric acid. Bloody vomitings. Locally, severe burns and profound shock. Introduction of permanent tube without anesthesia; stomach washed out.

On July 16 the patient swallowed liquid food and on August 4 dry bread alongside the sound. Sound was then removed. The patient lost only one pound during the whole treatment.

On August 31 she left the hospital after passage of a No. 48 sound.

Several months later I saw her at the hospital. She ate everything without difficulty; and a No. 48 sound passed easily into the stomach.

CASE 6.—On May 11, 1920, the patient drank 30 c.c. of concentrated lysol (tentamen). One hour later introduction of permanent tube through the nose; stomach lavage yielded lysol and blood.

May 11-14: Patient swallowed liquids alongside the sound. Temperature about 101.°

May 15-17: Patient is unable to swallow anything.

May 21: Patient swallowed dry bread alongside the sound; sound removed.

The patient left the hospital in good general condition; no trouble in swallowing food of any kind. Three weeks later a large sound was passed without difficulty.

Before we conclude about the value of this prophylactic treatment of this cicatricial stenosis of the esophagus, it seems wise to submit our observations to a thorough and detailed discussion. First we have to answer the following questions: Had we really to deal with burns of the esophagus? The anamnesis alone is not sufficient to substantiate the diagnosis. Often people show us liquids or powders which they did not take at all, either by error or to conceal a crime (our 3rd case). On the other hand the patients are used to aggravate facts, especially after an emotion following a poisoning of this kind. The quantity of poison increases proportionally their fright. The patient often noticed the error at the last moment; they spit out all of the poison, without swallowing one drop; and they come to the doctor with burn marks in the mouth and often with dysphagia caused by a spasm at the entrance of the esophagus. In all these cases we have to use our judgment and compare the anamnesis with the clinical data, which are very characteristic. Immediately after the accident follows an acute painful phase with intense dysphagia, bloody vomiting, often gastrointestinal troubles and symptoms of shock. In our six cases the clinical findings were exceedingly clear, and the subsequent stomach lavage, which yielded in every instance brown and bloody masses, confirmed our diagnosis of burn of the esophagus and stomach.

But our discussion has to go still further. Are all burns followed by cicatricial stenosis? The statistics of von Hacker give us the best information. Von Hacker found as the consequence of burns with alkali 25 per cent fatal cases, 50 per cent serious strictures, and 25 per cent mild strictures, very rarely absence of stricture. For the acid burns he found 50 per cent fatal cases, 33 per cent severe strictures, and 17 per cent mild, rarely no strictures. Similar statistics by Quenu and Petit reveal that in 59 cases of burns by alkali and acids at post-mortem examination only 3 cases were free from esophageal lesions. Those two statistical reports are very valuable for our study, because they show the enormous percentage of cicatricial stenosis

after burns. But, even if the prognosis were more favorable, we could not change our standpoint because of the impossibility to foresee whether or not a stricture will ensue, and the permanent tube is by far the best and safest treatment because it is prophylactic.

As a summary we can say that we obtained in six cases of esophageal burns complete cures.

Is this cure permanent? Our remotest case dates back to 1913, the others two to four years. In the literature we find a few case reports where the stenosis appeared very late, for example, Guisez cites two cases of tardy stenosis, 45 and 15 years, respectively, after the accident. But these are exceedingly rare cases, and we can avoid all trouble, advising our patients to return at once if they get any signs of dysphagia; in other words, we shall always have favorable cases of slight strictures which are easily treated by simple dilatation.

If we compare these results with the statistics of a few who have been treated for cicatricial stenosis, we shall see at once the great advantage. Dr. Guisez, of Paris, cites 40 cases treated by various methods by progressive dilatation, esophagoscopic dilatation combined with esophagotomy, circular electrolysis, and retrograde dilatation through a gastrostomy wound. Of these 40 cases 35 were cured; 5 died during the treatment; and 2 of the cured ones died later on account of recurrent stricture. Of these 35 cured cases 13 had to dilate the esophagus continually every week. Dr. Sargnon, of Lyon, cites 31 cases with 5 fatalities. These results are still very satisfactory in consideration of the gravity of the cases and the fact that the fatal issue was caused only rarely as a direct consequence of the treatment or its failure. These patients have, as a rule, a high mortality on account of partial starving, and the safest is, like everywhere, the prophylaxis. In the surgical clinic of Lausanne we treated 13 cicatricial strictures by various methods. We had two fatal results; 11 cases were cured, and 7 of these kept up the weekly passage of a sound and are still cured, and 3 have partial recidivation because they stopped the dilatations. The eleventh is the famous case of the first esophagoplasty performed by Professor Roux in 1906. I had the satisfaction of seeing the patient, a young man, twelve years after the operation. He eats everything without difficulty and one can observe the food gliding down the intestinal tract beneath the skin.

The comparison of the results is therefore extremely favorable to the prophylactic treatment



of fresh burns. It is still more favorable if we compare some secondary points, first of all, its simplicity. The results of Drs. Guisez and Sargnon are those of the best specialists in France. Their various treatments are exclusively reserved for the specialist. They require expert handling and particular and expensive instrumentation; and the danger or the efficiency of the treatment depends in a large measure upon the skill of the operator. Our treatment, on the contrary, is so simple that any doctor can easily perform it without danger to the patient and with equally good results. Another point, especially appreciated by the patient, is the shortness of the treatment, which on the average does not exceed one month. The stenosis calls for an intensive treatment for many months and, as a rule, is interminable, for most of the patients have to undergo weekly dilatations to keep up a permanent cure.

What objection will be put forward to this treatment? I think all agree as to the advantage of introducing a stomach tube and doing a thorough stomach lavage. The chief objection will be directed against the maintenance of a permanent tube in the esophagus. I reviewed, therefore, the medical literature in search of publications about the permanent tubage of the esophagus. Dessault was the first to use it and to advocate it in the following conditions: wounds of the pharynx, tetanus, and paralysis of the esophagus and lyssa. In 1799 Boyer maintained a permanent tube in the esophagus for five months without inconvenience. In 1881 Krishaber, of Paris, published four cases of permanent tubage in cancerous strictures. He concluded that the esophagus tolerates a sound indefinitely if it is introduced through the nose. Krishaber advocated also the use of the permanent tube for all operations on the esophagus, the tongue, and the palate. These indications have been adopted by many surgeons. Balacso and Cohn have compiled 326 cases of external esophagotomy after which the permanent tube had been used to a great extent to prevent post-operative strictures. The authors insist on the fact that the permanent tubes never gave rise to any trouble except in young children. Then follow many publications about the use of the permanent tube in cancerous strictures by the French Lannelongue, Gangolphe, Kirmisson; the English authors Durham, Croft, and Symonds; the American surgeons Chappel and Mixter; and the German surgeons Leyden and Schule. Symonds was the first to draw attention to a complication which he noticed in two

cases; a decubital ulcer behind the cricoid cartilage. The cause of this complication was the use of the hard English sounds, instead of the soft india rubber "Nélaton" tubes which the French used without any complication. Morell Mackenzie, Symonds, and Leyden-Renvers began, therefore, to use short tubes with a funnel-shaped upper end, which prevented the tube from gliding too far down; in this way they avoided all contact with the cricoid cartilage and have reported very good results in cancerous strictures.

I found only two case reports for permanent tubage of fresh burns: one from Gersuny (Wien. med. Wochenschrift, 1887) and another from Bonhoff (*Deutsche med. Wochenschrift*, 1919) with very satisfactory results in both cases, though the tube had to be removed and replaced two or three times on account of laryngeal irritation with stridor, necessitating in Gersuny's case a tracheotomy. Both cases were in young children, who as a fact do not tolerate the permanent tube as well as adults.

I have spoken about this complication, because knowing it means preventing it. Use a medium-sized, soft, rubber tube, observe the patient in order to remove the tube as soon as dyspnea appears, replacing it after one to two days, removing it again if necessary. In the cited case of Bonhoff this was done twice without bad influence on the result, which after one year was still a complete cure. Since my complete publication in the *Schweizer med. Wochenschrift* in 1919 there have been many favorable reports in the European medical literature. Unfortunately I have had no opportunity to compile and present them.

How can we explain this favorable action of the permanent tube? It seems inadmissible to think of a purely mechanical action because after the removal of the tube the esophagus has not the size of the sound, but really the normal lumen. The fundamental studies of the pathology of cicatricial stenosis by von Hacker show that we have to distinguish between two different forms of stenosis,—the valvular and the tubular type. The valvular strictures are formed by a local agglutination of the folds of the mucosa, and the epithelization binds them definitely. The action of the permanent tube (parting the folds) is evident and needs no further explanation.

The genesis of the tubular strictures is completely different. They are due to the formation of scar tissue in the esophageal wall, after the burn is in a state of permanent spasm (as

I found it always in my experimental work on the dog) thus presenting a considerably smaller surface than normal. As nature furnishes just the quantum sufficit of material of reparation to cover the defects, the result is forcibly a narrow stricture, especially after the retraction of the circular scar tissue. If we introduce immediately after the accident a permanent tube the spasm does not last, (the patient swallows soon alongside the sound), the esophageal wall relaxes, and the cicatrization takes place in a normally wide esophagus, leaving always a sufficient lumen.

If these tubular strictures are really due to spasm (which is easily prevented by the permanent tube) we ought to be able to remove the sound as soon as the spasm does not appear any longer. How long after the accident does the spasm subside? The pathologic study of the burns shows that the acute process follows two different types. The first is exclusively a necrotic process, and the eschars separate by muscular contractions like the placenta from the uterine wall. The second and the more frequent type, is characterized by a reactional demarcation. Both types are often combined with inflammatory processes, which prolong the acute stage—every inflammation of the esophagus produces spasmodic contractions of the wall (Guisez). This reasoning forbids to determine an exact date after which the sound may be safely removed. How can we judge then of the opportunity of the removal of the tube? In Professor Roux's clinic we used a very simple measure. If the patient was able to swallow dry bread alongside the sound without pain, we presumed that there was no serious inflammatory condition existing; if, on the contrary, inflammation was still present the bread irritated the inflamed wall which produced a spasmodic contracture around the tube; and the patient on account of pain could not swallow.

Our conclusions are summed up in this sentence: We recommend the permanent stomach tube in all fresh burns of the esophagus; a medium-sized Nélaton sound introduced through the nose and left in place until the patient eats and swallows dry bread alongside the sound.

#### DISCUSSION

DR. GEORGE F. THOMPSON (Chicago, Ill.): I have had no experience in the treatment of lye and acid burns of the esophagus by this method, or by any other method for that matter. My experience has been confined to the treatment of cicatricial stenosis developing later, and to neoplasms, etc. From analogy, comparing the esophagus with the urethra, I may say that I have always left a permanent

catheter in the urethra for some time after injury due to fracture of the pelvis where the urethra has been lacerated. In none of these cases have I seen any untoward results; in fact, so far as I know they all healed without any stricture. I remember an especially bad case in a man who is still at the County Hospital as an employee. About twenty years ago, this man came in with a severe injury of the urethra following fracture of the pelvis; and in addition the internes in attempting to introduce a catheter or sound inflicted a good deal of trauma on the urethra. I did a perineal section, but failing to locate the upper end of the urethra, went into the bladder and passed a catheter down and out through the distal portion. He had a destruction not only directly from the accident, but also from the instrumentation, probably of one or two cm. of urethra. It suppurred after that even and we left the tube in, and that man has never had any trouble since. He has a perfectly normal urethra, without cicatrization.

I think the pathology is accurately described by the essayist; that is, spasm of the hollow organ is avoided by the permanent retention of the catheter or sound, which temporarily causes a paralysis and a relaxation of the organ, giving it a better chance to heal, much as one would immobilize a joint in order to obtain the least possible cicatrization.

In regard to the later treatment of this condition, at the present time I am treating two patients by the use of a threaded and graduated bougie, which I think is the most satisfactory late treatment. Also in one case I had a stomach tube in for a week, since which time the patient has never had any difficulty.

DR. ALFRED M. RIDGWAY (Annandale, Minn.): This most interesting and instructive paper has brought to my mind the case of a young woman who had a goiter and complained of inability to swallow anything except liquids. I supposed that the condition was due to the pressure of the goiter. On operating I found that a portion of the mass had passed between the esophagus and trachea, shutting off the opening into the esophagus. Its removal required extensive dissection and produced much trauma to the esophagus. For some time afterwards the patient had some relief from this stricture, but in the healing process cicatricial tissue developed and formed a decided stricture of the esophagus. The patient then complained of being unable to take any food, even soup. So I attempted to pass an esophageal dilator, and found it almost impossible to pass the smallest size through the stricture, but I did succeed and continued dilating and finally succeeded in getting the lumen enlarged to fully three-quarters of an inch in diameter. This relieved her so much that she gained in flesh, strength, and color, and improved wonderfully. In a few months she came back with the same complaint, and I found that the constriction had again closed. That was five years ago. I went through the same procedure, dilating the esophagus, and I have since loaned her a dilator which she uses three or four times a week and gets along nicely.

DR. ARCHIBALD D. McCANNEL (Minot, N. Dak.): The full value of this method of treatment can be



appreciated only by those of us who have treated strictures of the esophagus, following the swallowing of caustics and acids.

The fundamental principle of this treatment is physiological rest of the esophagus. This point is especially interesting to me as I have recently published a paper calling attention to the necessity of physiological rest of the esophagus following trauma after the removal of foreign bodies.

Two cases of very large foreign bodies in the esophagus, in which rupture of the esophagus was feared on account of the severe adenitis following removal, responded to this treatment; namely, no food by mouth for seven days (rectal feeding), and atropin to dry secretions.

DR. HABERLIN (closing): Since I have been in America I have had one unfortunate experience. It was a lysol burn in an individual who attempted

suicide. Two hours later I saw the patient, introduced the tube through the nose, and washed out the stomach but the man died from shock.

A permanent tube does not reduce the immediate mortality rate, but what it should prevent is cicatricial stenosis. I have seen many cases treated for cicatricial stenosis, and it is certainly a disagreeable treatment. The esophagoscopic treatment is successful in expert hands. I have seen doctors in Europe doing it just as easy as we would insert a catheter into a bladder. Even under the care of those doctors it requires many months to control such strictures. When we got through dilating a stricture we always left the sound in place for twenty-four to forty-eight hours because we found that this softened the stricture and the patient received much more benefit than from simple dilations.

## SOME COMMON CAUSES OF ACUTE ABDOMINAL PAIN\*

By ALFRED M. RIDGWAY, M.D.

ANNANDALE, MINNESOTA

About 25 per cent of all diseases of the abdomen are incorrectly diagnosed in spite of all the latest methods and trained experts. It behooves us as general practitioners to keep before us a picture of the anatomical structures and relations of the different parts of the abdomen so that we may be better able to eliminate certain conditions that are frequently confusing in making a diagnosis.

When I graduated from the University of Minnesota Medical School, in 1890, we were taught a great many things that are obsolete today. One of our leading surgeons said a few weeks ago, while talking on medical education, "In the early days we were filled full of ignorance and then graduated and turned loose on the public to dig out an existence." I take exception to his broad statement. I admit we have changed some of our conceptions and learned a great many new things in the last thirty years, but I am glad to say that our masters in medicine in the nineteenth century constructed a firm foundation to build upon. When we look at the perfect drawings in Gray's Anatomy, and the cuts in Hamilton's and Wyeth's Surgery, we see how perfect such drawings of the different kinds of fractures and dislocations are. All this was done before the day of the x-ray. We must admit that the teaching, learning, and training in these old schools were good, as those men had to depend entirely on their physical findings at the

bedside. How often we are called in consultation and find that the error in diagnosis is due to an incomplete physical examination. Too many of us are apt to make a "snap diagnosis," especially if we are overworked and tired, which is very unfortunate and frequently disastrous for our patient.

One of the common mistakes in diagnosis is in diseases of the abdomen, which if diagnosed early and correctly would be of vital importance. A few hours delay at times may cause all kinds of complications and perhaps the death of the patient. Most of the patients who come to us for abdominal troubles complain of pain which may be local or general, mild or severe. Most abdominal pains are at first local, such as are found in acute appendicitis, renal or biliary colic, hernia, intestinal obstruction from any cause, ectopic pregnancy, or perhaps an ulcer of the stomach or duodenum or bowels. The pain from the stomach or duodenum is in the epigastrium, sometimes radiating to the back, sides, and through the abdomen. It does not come on immediately after eating, as a rule, but within one-half to two hours afterwards, and is described by the patients as being aching, cutting, or boring in character. At times it is so severe that one must resort to the use of morphine. Perforation is one of the most serious and common complications. If it should occur on the anterior surface of the stomach or duodenum, the pain is very severe—severe enough at times to produce sudden death from shock. If the perforation is

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.

on the posterior surface of the stomach or duodenum with protective adhesions, then we get localized peritonitis with the formation of a subphrenic abscess, which may approach the surface beneath the right costal margin at the umbilicus, or rupture into any of the cavities of the abdomen.

We often find severe pains in the abdomen in the beginning of Pott's disease, and some of the patients have had their appendix removed.

Pyelonephrosis is another condition which, if on the right side, is very suggestive of appendicitis with pain, nausea, vomiting, fever, and muscle spasm. This is not a case for a "snap diagnosis."

The pain produced by the passage of a hepatic or renal stone is usually paroxysmal in character, coming on very suddenly lasting an indefinite time, and usually terminating abruptly. The pain that we find in acute appendicitis usually comes on more gradually and, within a few hours of its beginning, we have nausea, perhaps vomiting, and muscular spasms in the region of the appendix.

Another quite common cause of abdominal pain is the onset of acute lobar pneumonia. I have several times been called in consultation to decide the advisability of an operation when the case was acute lobar pneumonia. We always find more or less pain in tuberculous peritonitis. The pain is usually dull in character, more of a heavy uncomfortable feeling than a real pain. The chief points to be observed in arriving at a diagnosis of tuberculous peritonitis are: the chronicity of the trouble, the presence of fluid in the peritoneal cavity, the thickened folds or masses of peritoneum that can be felt as tumors in the abdomen and other tuberculous findings. This condition may be confusing in certain cases, on account of having neoplasms in the gastric or intestinal walls.

Intestinal colic is due to many causes. The pains are always paroxysmal and usually recurrent. They vary in degree, from very mild to very agonizing. Painter's colic is perhaps the most common. The history will help us very materially in arriving at a conclusion.

Another common cause of abdominal pain is intestinal obstruction, partial or complete. I have seen a great many cases due to adhesions, either following abdominal operations or due to repeated attacks of chronic appendicitis. Some of the common causes are tumors in the walls of the intestines, pressure from without, intestinal parasites, especially round worms in children, gall-stones, fecal impaction, volvulus, intussus-

ception, or Meckel's diverticulum. Where we have a complete obstruction, by observing the abdomen, if the patient is not too fleshy, we can see the peristaltic waves carried down to the point of obstruction. This I have seen in many cases. Gastric crisis in tabes may cause general abdominal pain, but the absence of knee-jerk and other symptoms will aid us in diagnosis.

I wish to call attention to two perplexing cases. The first was a woman of thirty years, whom I saw with her attending physician, who had diagnosed her case as appendicitis. She had severe pain in the abdomen at times, and a slight discomfort all the time, which caused her to be confined to bed considerably. From the history of the case and the examination I found that it did not line up for appendicitis. I recommended that she be sent to Minneapolis for an examination and diagnosis. She was kept in a hospital for several days, and in the report they informed me that she had an impacted stone in each ureter at the junction of the upper and the middle third. They catheterized the ureters and dislodged the stones, which were then passed off. She made an uninterrupted recovery and has enjoyed perfect health since. I saw the radiograph, which was very interesting and instructive to me. It showed the size and location of the stones perfectly and made an impression I shall always remember.

The second case was a man of forty years of age, who was taken seriously ill while in Minneapolis. He took the first train home and called his physician who saw him in less than three hours after he was taken sick. This case was diagnosed as renal colic and so treated for three days. At the end of that time I was called in consultation and found the patient suffering from a general peritonitis. He was very septic, delirious, had intermitting pulse and dry tongue, and he died at three o'clock the next morning. A post-mortem examination was made by his physician and myself, and we found that he had a ruptured appendix and a large appendiceal abscess, which extended down to and behind the right ureter. The ureter was incorporated within the inflammatory mass of the appendix, which accounted for the renal symptoms.

I have mentioned these two cases to show how easy it is to make a serious mistake unless one is extremely careful in making the examination. I sometimes feel that we physicians lose sight of the importance of a thorough examination. In these cases much time, pain, and perhaps a life could have been saved by an early and correct diagnosis.



As a result of many errors in diagnosis of appendicitis, several of the larger hospitals in the East have established the rule that no appendectomy shall be performed unless an *x*-ray examination has been made.

#### DISCUSSION

DR. GEORGE F. THOMPSON (Chicago, Ill.): Dr. Ridgway's paper is very opportune. All of us have had experience with a wrong diagnosis in acute abdominal lesions.

Generally, pain is the chief symptom, and it is practically always a reflex pain. The pain of certain abdominal pathological lesions is of course due to muscular spasm, such as is due to passage of a stone down the ureter, the passage of a gall-stone, or the colic that occurs in obstruction with spasm of the bowel,—muscular spasm with sufficient force behind it so that the bowel becomes distended. It is the distention of the tube with its muscular fibers that causes the pain, as is the case in the pain of acute gastric ulcer. A great deal of the pain is of a reflex character; that is, the organs themselves are not sensitive. After one has opened the abdomen one can handle the stomach, bowels and liver, cut the organ, burn it, or tear it without any sensation to the patient. The parietal peritoneum is a part of the abdominal wall, and the sense of pain is limited to its superficial layer. The pain is due to an impulse to the reflex arc. Illustrations of this fact are too numerous to mention. The one instance the essayist cites as an example is the pain of appendicitis. When we have an inflammation of the appendix pain is usually first felt generally over the abdomen and then becomes localized more or less in the region of the appendix. Accompanying that symptom of reflex pain we also have the motor reflex; that is, we get the rigidity over the right lower abdomen, and with generalized peritonitis we get it elsewhere. With diffuse peritonitis the pain extends over the abdomen generally.

Going a little farther along this line, Dr. Ridgway mentioned that lobar pneumonia, especially a right lobar pneumonia, is accompanied by abdominal pain and also sometimes by quite marked rigidity which, of course, is reflex. In one case the diaphragmatic pleurisy turned out to be on the left side with pain extending up the side of the neck. Later the pain localized in the right and left flanks with a great deal of rigidity on the right costal margin, when the diagnosis was made, the day before, of perforating ulcer of the stomach, and later when the pain moved around a little bit to the flank, and the man was brought into the hospital. Because of albumin in the urine a diagnosis of pyelitis or perinephritis was made. Later we determined that he had pneumonia. Those are reflex pains, referred to the area supplied by sensory nerves originating in the same or a near-by segment of the spinal cord.

The peculiar part of referred and reflex pain, so called, is that such pains are referred to a certain region necessarily. Under normal conditions the sensations that may arise in the alimentary tract

and other organs of the abdominal cavity do not make any impression on a person except in a neurotic individual. Neurotics will describe sensations that ordinary people never feel. When a pathological condition arises then the impulses that originate in that region, as, for instance, the appendix, are transmitted to the cord where in the region adjacent to that particular center they set up an area of irritation, so that the cord, up and down, becomes more or less irritable, and as the organism is accustomed to referring sensations coming into the cord to peripheral influences, as from the skin, naturally they are referred back to the skin as being the source of the irritation. That is why we have abdominal hyperesthesia. Hyperesthesia causes the sensation of pain. We can press on the appendix, squeeze it, and not hurt the patient. The only way the patient can be hurt is by direct injury to the parietal peritoneum. Manipulation of the appendix does not affect the parietal peritoneum, or if we press back far enough we cause pain in the mesentery. It has been demonstrated that this is a referred pain; that is, the impulse from the appendix is referred to a certain region in the body as a painful sensation. It does not make any difference what part of the abdomen the appendix is in, we are going to get the pain and rigidity in the same place.

A week ago I operated on a girl ten years of age for appendicitis, and she was markedly tender and rigid as low down as McBurney's point and even lower. Her appendix was found at operation to be located high up beneath the liver at which point she has been neither sensitive nor rigid. Very frequently in looking for an appendix we have found it in an entirely wrong location, but the early pain, tenderness, and rigidity were located over McBurney's point.

With reference to acute perforation of a gastric ulcer I do not think any person will make a mistake the second time except under unusual circumstances. The pain is usually so severe and agonizing and causes such early rigidity of the upper abdomen that, as a rule, the diagnosis is easy. One or two mistakes will suffice to put a person on his guard. When the escaped gastric contents trickle down outside the colon mistakes are easily made, and we operate for appendicitis. The same is true of the pain of ectopic pregnancy. When we make one or two mistakes there we do not make another one except in the atypical cases. In acute rupture of the tube, the pain, its nature, and the circumstances under which it occurs are so characteristic that, as a rule, one will not fall down.

An interesting point in the report of the essayist is in regard to kidney stones. This is one of the most frequent sources of error in operating for appendicitis under a wrong diagnosis, especially in young women. In the last few years I have seen a dozen young women who had been operated on for appendicitis when the symptoms were due to a kidney stone. I plead guilty, for I also operated for appendicitis in the case of a young woman who had a stone in the right ureter with symptoms simulating those of appendicitis. There is always something about the history that is a little sugges-

tive, or at least the development of the appendicitis is not characteristic if one carefully goes into the history and there may be some history of urinary disturbances, though it may not be characteristic of renal stone. In August, 1921, I operated on a man thirty years of age for supposedly acute appendicitis. He had been seen by my associate, Dr. McMullen, for what he thought was renal colic, but the Doctor had never been able to submit the patient to an *x*-ray examination. At the time mentioned the patient suffered another attack which the Doctor thought was the same thing, but which I thought was a typical attack of appendicitis, remembering, too, what Dr. McMullen had found when he was at the hospital and I found blood and pus cells in the urine. A leucocyte count was made which showed 12,000 to 14,000, but his symptoms were so typical that I thought I would operate. On opening the abdomen I pulled out the colon with a perfectly normal appendix, but found he had an annular carcinoma of the ascending colon. I did a resection and lateral implantation, since he has been perfectly well, has no more attacks. The blood and pus all cleared up.

Another type of cases in which we are misled is a retrocecal appendix involvement contiguous to the ureter. There we may have blood and pus in the urine.

The whole subject of abdominal pain is one that has been discussed for many years, yet we are very far from being able to make an accurate diagnosis in a considerable number of cases even with the improved methods at our disposal.

I do not know whether any of you have had experience with pneumoperitoneum. A doctor whom I saw for the first time a few days ago, had what appeared to be an enlarged spleen. His trouble had begun with a left-sided diaphragmatic pleurisy. He had pain on deep respiration, and when I first examined him he apparently had a little fluid in the pleural cavity, but there was respiratory excursion. We could not determine whether it was the spleen, but it felt almost too large for a spleen. We had him *x*-rayed; then air was introduced into the abdominal cavity, and it brought out beautifully the enormously enlarged spleen. When I operated I found that the trouble was not in the spleen. The organ was three times its normal size, but this we think was due to the extension of a retroperitoneal sarcoma, which had pushed the spleen forward and downward, and it was enlarged by stasis produced by pressure on the blood vessels. If you have not had a chance to do any work with pneumoperitoneum it is very interesting, and you can bring out some very striking illustrations of intra-abdominal conditions.

DR. CARL VON NEUPERT, JR. (Stevens Point, Wis.): I wish to report an extremely interesting case. It was the second case of the kind that I have had.

A woman, aged 63, whom I attended for inflammation of the gall-bladder last March. She was sick three weeks, got over the attack nicely, and was practically without symptoms until a week ago last Saturday. She had partaken of a rich meal, commenced to vomit, and the following day rigidity and pain over the abdomen developed. There was

no rigidity or pain in the region of the gall-bladder, but there was considerable pain over the region of the appendix. I advised her to go to the hospital that I might watch the case. She refused to do anything and begged me to give her a hypodermic of morphine, which I did contrary to my rule in abdominal cases. The following day she had vomited greenish material and continued to vomit for several days. I finally induced her to go to the hospital for high enemas. At the beginning of the second day I thought she had intestinal obstruction. Due to the washing out of the stomach and to the fact that all food and even water was withheld the vomiting let up, and she was apparently easy until late Tuesday evening when she commenced to vomit fecal material. Operation was refused until Wednesday morning when the relatives realized nothing else could be done. I operated and found an impacted gall-stone in the small bowel, but just exactly where it was located in the small bowel I did not take time to find out, but because of the fact that I had to deal with several feet of bowel I take it that it was three or four feet down anyway. The stone was as large as a good-sized egg.

Operation: Removal of stone by incising intestine and closing in usual manner.

She had a pretty stormy convalescence, suffering from ileus. When I left home there had been several bowel movements, and she had not vomited for two days.

The case is interesting because stone in the bowel is very unusual. Ten years ago I operated in such a case, and the patient died the next day. This operation was done on the tenth day after the onset of symptoms and only by urgent request of attending physician and relatives.

This patient was, on February 25, 1923, in apparent good health.

DR. WILLIAM F. SIHLER (Devils Lake, No. Dak.): We have heard Dr. Ridgway speak very thoroughly on the various conditions that might be found within the abdomen to cause pain and a very thorough explanation of physical examinations necessary to make a diagnosis. I think that, hand in hand with thorough physical examination should go a very thorough history-taking. This is as essential as physical examination, and, in some cases, more so. In viewing the various conditions in the abdomen, there is none that does not have characteristic symptoms that will give us a lead as to the true condition. In starting with gastric and duodenal ulcer we know that there are characteristic symptoms early in this disease that will lead us to think of this condition. It may be only pain after eating and vomiting, coming on only once or twice a year with intervals of perfect health. In gall-bladder trouble we get somewhere in the history symptoms of sudden pains in this area and possibly indefinite symptoms of indigestion, possibly a slight jaundice at some time with light-colored stools. In obstruction of the bowel, if we are careful in our questioning, we will find a characteristic feature of the pain in the beginning is that it comes on gradually, works up to crisis, and gradually fades away. This feature is always present, but may require a little



questioning to bring it out. In appendicitis, with the general abdominal pain localizing in the right side after a few hours, with accompanying tenderness and perhaps increased resistance on the right side. In ectopic pregnancy, to have a sudden onset of pain in the lower abdomen with some weakness which may amount to real fainting, with or without disturbance of menstruation. In renal or ureteral calculus, it is at some time a severe cutting pain in the side extending down into bladder with perhaps disturbance of urination, either in frequency or suppression at the time or a small amount of blood.

The point I wish to make is that there is no pathological condition in the abdomen, coming on in an acute condition, that does not have some symptom that is characteristic of that condition. It may be a symptom that has not been noticed by the patient, but it can always be elicited, either from the patient or relatives, if the proper line of questioning is followed. Even in conditions where one or more organs are involved and where the condition has become more or less chronic, it is just as important and just as helpful to go back and elicit the symptoms produced in the early stages of the trouble. It is important to get the previous history as thorough as possible because we know certain conditions, such as chronic dysenteries, typhoid fever, gonorrhea, and many other conditions, may assist us very materially in making a diagnosis.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): There are two main etiological factors,—rupture of gastric ulcer and suppurating appendicitis,—in the question of subphrenic or subdiaphragmatic abscess. The history of surgery shows that the diagnosis of subdiaphragmatic abscess is nearly always made when we are operating for another lesion, and, as a corollary, I desire to report one case in extenso.

Mr. R. B., aged 51; American; married six years; no children. A bridge carpenter for Minneapolis, Northfield & Southern Railway.

Tonsil trouble since childhood, but not so much lately. Typhoid when fourteen years old. Had mumps and measles when a child. Thirty years ago was in hospital at Shreveport, La. for malaria. Was in hospital in Portage la Prairie, Manitoba, for rheumatism in January and February, 1907, and had tonsil trouble at that time. Eight years ago he first noticed, or developed, pain across the abdomen, lasting few days. Used Antiphlogistine, and had no physician. This condition left soreness over the appendix region. Seven years ago he had considerable tonsil trouble. Last September, while working as lumberman in Minnesota, he was taken with pain across the abdomen, when the company doctor saw him, who gave him medicine. He was off from work one day, but right side was sore for a few days longer.

Gave history that he had been turned down for both the Spanish-American and Boer wars on account of cardiac lesion.

May 12, 1919, after he had gone to bed, soreness started across the abdomen, the most severe pain he has ever had. Dr. Alvin C. Tanner first saw him on May 16, in the forenoon. He entered the hospital on May 16, in the afternoon.

Physical findings: Some muscular rigidity over the right side of the abdomen. Has large, plainly perceptible, painful mass on the right side of the abdomen, close to the outer abdominal wall. The leucocyte count was 10,300, which likely indicates abscess. Runs a temperature which never reaches normal.

Teeth: lower, has two on bridge and two gold crowned; has eight other teeth; several are loose, due to pyorrhea: upper, has three small bridges and four gold crowned; all told, has fourteen teeth in upper jaw. Has no diseased tonsils.

May 17: Large mass over appendix region. Full tub-bath. S. S. enema. Ice-cap over appendix. Semisolid diet.

May 18: Leucocyte count, 11,100.

May 19: Had x-ray of teeth. Leucocyte count and temperature higher than they have been. Feels comfortable.

May 20: Examined x-ray films with Dentist Nilsson. Five abscessed teeth should be extracted.

May 22: Operated under ether, assisted by Dr. Tanner. A four-inch outside right rectus incision was made with center over enlargement. A dense mass, surrounded by indurated adhesions, was found surrounding the cecum and appendix. The omentum was involved in the inflammatory mass. No appendix was recognizable. The mass was firmly and densely adherent to the right side of the abdominal wall, and was not of recent origin. Blunt dissection with gauze over finger was commenced from below upward, working between the mass and the posterior abdominal wall. The omentum was ligated and removed. A small stump of appendix, two inches long, was finally recognized, surrounded by questionable pus formation, dissected from its adjacent structures towards cecum, ligated at root and removed. The terminal part of appendix was detected beneath the cecum, which, on removal, revealed the escape of creamy-white pus. The posterior wall of the cecum was of very low vitality, as were all other tissues involved in the inflammatory mass. In the dissection, effort was constantly made to keep away from the intestinal wall. Three large drains of gauze and gutta percha were inserted; lower into the pelvis, middle to root of appendix, and upper, back of the cecum. Attention was paid to place the cecum and omentum snugly towards the drainage tubes. The peritoneum and internal oblique were closed with ten-day chromic catgut blanket suture, allowing drainage tubes to project through the lower extremity of the abdominal wound. Same for external fascia and skin. Bulky dry gauze dressing was applied and held in place by abdominal binder. Posterior lower left rear tooth extracted by Dr. Tanner.

Comment: The appendix was found in two distinct pieces; the center evidently had ruptured several years ago, separating the distal from its proximal part, leaving the distal part abscessed and the proximal part in an infected condition as found at operation.

The patient was placed in Fowler's position, and Murphy's installation of normal salt per rectum was instituted, giving two quarts the first twelve hours.

May 24: Temperature, normal. Considerable bowel matter on dressings,—fecal fistula. Complete change of dressing twice daily. Removed pelvic drain. Turn patient on abdomen for thorough drain. S. S. enema. Gets I. Q. & S.

May 28: Removed middle drainage tube. Turned patient on abdomen. S. S. enema, 1 pint, every afternoon; Hinkle to-night.

June 1, A. M.: Removed upper and last abdominal drain. Remnant of skin suture removed and upper part of wound has firmly healed. Patient has been running a temperature of 102° with profuse perspiration, with no decline of the leucocyte count, in fact, the temperature and leucocytosis remained about the same after the operation as before it. The seat of the real trouble has not been removed.

June 1: 10:00 P. M.: Had been dressed at 6:00; had chill at 8:00, lasting fifteen minutes. Pulse, imperceptible. Cold sweat. Delirious. Condition desperate. Camphorated oil, 1 c.c. hypodermic; repeat in one hour.

An abscess had been ruptured, with discharge of a large amount of grayish, creamy pus. This was followed by profound shock from the sudden evacuation of a large abscess, a subphrenic abscess. This was plainly a case where abscessed appendix was followed by extension of infection, posterior to the ascending colon, which finally terminated into a subphrenic abscess.

June 2, 1.00 P. M.: Cold clammy sweat. Complete change of dressing. Pressure between wound and ribs exudes considerable pus. Ordered to drink a glass of water every hour. Turned on abdomen for drainage.

June 3, 10:00 A. M.: Complete change of dressing. Considerable pus discharge. To turn on abdomen for drainage. S. S. enema, one pint, this P. M. Temperature, normal. Condition remarkably improved over what it was two days ago, and he will recover.

The fecal fistula was anticipated, and, as they nearly all heal, discontinued to discharge as soon as drainage tube wound healed.

June 21: Wound smaller, but still considerable discharge due to patient walking about hospital. Left hospital for home.

August 8: Has been in country three weeks; weighed 168 pounds when going and now weighs 181.

June 11, 1921: Has no ventral hernia, except weak in lower half. Perfectly well, and working daily.

DR. JOHN V. R. LYMAN (Eau Claire, Wis.): There is one pain in the acute abdomen that was overlooked in the paper, and that is hemorrhagic pancreatitis. I have had two cases in the last year. In one case the patient was operated on early and recovered; the other gave symptoms and history of gall-stone attacks. The first time I saw the patient he had had attacks over a period of several years. I advised him to go to the hospital, but he refused. Within the next twenty-four hours I called again to see the patient and found that he

was having emesis of blood and hemorrhagic stools, and I again urged that he go to the hospital, which he did, but he died in half an hour. Post-mortem examination revealed hemorrhagic pancreatitis.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.): There are two other conditions which should be taken into consideration. One of these was impressed on me recently. A man brought a little boy to the hospital and said he thought he had appendicitis. I examined the boy and found that he was rigid all over the abdomen; temperature, 101°; pulse, 120.

According to our method of treatment the boy should have been operated on within the first twenty-four hours to give him a fairly safe operation in case an acute appendicitis existed. I cannot tell the reason why, but the boy's abdomen did not feel right. I did not think he had appendicitis. I asked the boy what food had been partaken of, but could get no definite information. I kept him in the hospital, gave him a high enema and a big dose of castor oil, and in twelve hours he was all right; the rigidity and pain disappeared. They took the boy home and brought him back in two days in the same condition. They said they kept him in the house and he had not been out, but he ate some more Roquefort cheese and the same condition developed. He was all doubled up with pain. We succeeded in clearing up the condition, and there was no appendicitis about it.

The other condition referred to is intussusception. In case of acute abdominal pain, especially in children, intussusception can be very easily mistaken for some of these conditions, and it should always be considered.

DR. DEWAYNE TOWNSEND (Belgrade, Minn.): I was recently called to see a child who had diarrhea with green stools. When I saw him he was suffering from extreme distention. Palpation revealed an indefinite mass in the region of the splenic flexure of the colon. Rectal examination did not show anything. About twelve hours before I was called the baby had passed blood and bloody mucus, and I made a diagnosis of intussusception. The baby was having paroxysms of pain characteristic of that condition. Just because I wanted to do everything that possibly might do good I began to give the child high enemas, but got nothing except bloody mucus, no gas or fecal material. After three hours spent in trying to dilate the colon in that way I took the child to the hospital and while the operating-room was being prepared I again attempted to dilate the colon, and it so happened that I succeeded. Under the pressure of four of five enemas I finally got a little gas; then there was a mighty gush of bloody mucus and a little fecal matter. We did not operate, but put the patient to bed and kept him quiet, when fecal matter, very foul, began to come profusely, and the baby recovered in short order. I have no doubt there was an acute intussusception, which I reduced by enemas.



## THE EARLY TREATMENT OF INJURIES TO THE EYEBALL\*

BY LYMAN A. COPPS, M.D., F.A.C.S.

MARSHFIELD, WISCONSIN

In all branches of industrial surgery the two principal objects in the treatment of a case are, first, to obtain a result which gives a minimum amount of permanent disability, and, second, to get the patient back on his job as soon as possible. Perhaps in no class of wounds is the proper first treatment more important for the attainment of the above objects than in wounds to the eyeball, and for that reason it is better that every eye wound, even to the simple foreign body in the conjunctival sac, be treated from the first by an eye specialist. However, many cases are necessarily first seen by the general surgeon, so it is imperative that he be able to render intelligent treatment and that he also have a realization of possible later complications of even the simplest injury.

By far the most common form of trauma to the eyeball is caused by the entrance of a small particle which lodges somewhere in the conjunctiva or the cornea. The danger in these cases results from infection, either by organisms already in the conjunctival sac on the foreign particle or organisms carried into the eye by the surgeon who removes it.

If the foreign body is not on or in the cornea its removal is very simple and usually is accomplished by means of a cotton swab. In doing this the possibilities of infection should be borne in mind. The swab must be sterile, and it is well to instill a drop of some antiseptic after the removal. Before discharging the patient a careful inspection of the corneal surface should be made to see that there are no breaks in the epithelium, and he should be ordered to return if the feeling of irritation persists more than twelve hours.

If the foreign body is embedded in the cornea the possibilities of trouble are much greater. The thing to be avoided is an opacity in the cornea which will only follow if there has been an infection. The manner in which this takes place is best understood by having a good knowledge of the histology and physiology of the cornea.

The cornea is covered externally by a layer of pavement epithelium, which is four or five cells in thickness. This epithelium has a remarkable regenerative power and will cover any defect very quickly if not held back by infection.

Beneath the epithelium is a fairly tough homogeneous or glass membrane, Bowman's membrane, which is quite impervious to infection when unbroken. It also will regenerate quickly if unhindered. Next is the substantia propria corneæ, which is made up of lamellæ of transparent collagenous fibrillæ, between which are fixed cells or corpuscles and wandering leucocytes. This substance is much less resistant to infection than the two overlying layers. Then comes another very tough glass membrane, Descemet's membrane, and a layer of endothelial cells. Descemet's membrane is very elastic and will resist necrosis long after all the other layers have been destroyed.

If the foreign body is embedded in the epithelium, and it is removed without injuring Bowman's membrane, infection will rarely take place, and the epithelium covers the defect in a very short time. The removal can usually be accomplished with a cotton swab. If the foreign body has penetrated Bowman's membrane and is removed early with aseptic precautions, regeneration will usually take place so rapidly that infection is shut out. It is very easy for the surgeon to plant organisms into this cornea by careless technic.

When Bowman's membrane is penetrated and the case is first seen later than twenty-four or more hours after the injury there is often a narrow zone of grey infiltrate about the foreign body. Here the superficial corneal lamellæ are necrotic, and wandering corneal leucocytes have invaded them to stamp out the infection which is there. When the wound is infected healing may take place rapidly, or the invading organisms may increase, in which case their toxins must flow through the interlamellar lymph spaces to the limbus before reaching any blood supply. Then serum and leucocytes must travel back to the site of the injury to be effective against the organisms. Because of this long distance between the two locations, healing is slow, and the infection may not easily be overcome. The septic process may be held in check for some time and slowly heal, or it may progress causing more and more necrosis until we have the formation of a well-developed ulcer. The ulcer enlarges by the spread of organisms between the lamellæ and formation of new colonies

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.

whose toxins cause necrosis and sloughing of the overlying tissue. In this way a large part of the cornea may be destroyed.

In the more severe types of ulcer the cornea may be perforated, in which case an infection of the whole eyeball with total destruction may follow.

Healing is accomplished by the usual invasion of fibroblasts and connective tissue formation, the scar is not transparent, and vision is consequently impaired.

Frequently a patient comes in complaining of a foreign body when there is none in the eye, but there may be a slight abrasion of the corneal epithelium. In this case the instillation of mercuric chloride ointment and the application of a bandage is as important as with the foreign body. A slight corneal abrasion will easily escape notice unless fluorescein is used. Fluorescein should be used in all cases to determine the extent of the injury and detect any abrasion that may not be seen otherwise.

Bearing in mind that most cornea ulcers develop from minor injuries, every precaution to prevent infection must be taken in these foreign body cases. The following safety measures are suggested in their treatment:

1. Anesthesia: Cocaine softens the corneal epithelium and decreases its resistance to trauma or infection, and it dilates the pupil. Neither holocain nor butyn have these effects and are better to use. Butyn, especially, gives a very quick anesthesia.

2. Asepsis: As much care should be used as in any clean operation.

3. Antisepsis: Every case is potentially infected. After the foreign body is removed all burned or devitalized tissue must also be removed. Then it is well to use an antiseptic. The following mixture applied directly to the wound is recommended by Woodruff if there is already ulceration:

Rx. Zinc iodide .....	15.00
Iodine (crystal) .....	25.00
Glycerine .....	50.00
Aquæ dest., q.s.ad.....	100.00

Tincture of iodine may be used. Instead of making a direct application an antiseptic, such as silver nitrate, mercurochrome, or mercuric chloride ointment, may be instilled.

4. Bandage: If the epithelium is intact a bandage may not be necessary, but if there is a break in the surface a patch or bandage is very important. The lid is kept from constantly brushing over the wound, the smooth palpebral

conjunctiva aids epithelial proliferation just as adhesive or paraffin does to a burned skin surface, and infection is kept out.

5. Observation: The patient should report in twenty-four hours and at intervals thereafter until the wound is completely healed.

If the physician is unable to remove the foreign body or does not wish to attempt it he should instill an ointment, such as mercuric chloride, and put on a bandage.

Every patient reporting with a foreign body on the cornea should be impressed with the great importance of reporting early. The custom of having another workman remove the foreign body with a pencil, handkerchief, or what not, often results in more harm being done, and it is to be discouraged. The opportunity of emphasizing the value of preventive measures, such as goggles, should be embraced. By methods somewhat similar to the above Van Kirk reports a decrease of over 400 per cent in the number of corneal ulcers occurring in a large Pittsburg steel mill.

Another class of injuries to the front of the eye which require prompt intelligent treatment is chemical burns. Permanent corneal opacities and adhesions between the eyelids and ball are the serious outcome. The former are due to a coagulation of the superficial lamellæ of the cornea and the latter to excoriation of the conjunctiva. Pain may be relieved by butyn or holocain, and the conjunctival sac must be thoroughly irrigated using a neutralizing solution, saturated boric acid or weak acetic acid if it is an alkali burn and 5 per cent solution of sodium bicarbonate if acid. The lids should be turned over to be sure that the cul-de-sacs are cleansed and the irrigation or instillation of the neutralizing agent repeated for sometime. The immediate injection of 1.5 c.c. to 2 c.c. of the same reagent beneath the conjunctiva can be made by a specialist. I have done this in acid burns and have seen a remarkable clearing of the clouded cornea in the first twenty-four hours.

Burns by fire or hot metals can be palliated by the careful removal of any foreign substance, a bandage, and the instillation of one-half per cent holocain in sterile liquid petrolatum to relieve pain and protect the cornea against the swollen and roughened conjunctiva.

The more severe injuries to the eyeball may be included in two principal groups, those in which the outer coats are not ruptured and those in which they are. It is impossible to go into a complete discussion of these injuries, but I



wish to point out some of the later complications which can be avoided at least in part by proper early treatment.

That the eyeball is not ruptured can be determined by the fact that its tension is not greatly reduced. Here we have two main conditions to deal with, namely, intra-ocular hemorrhage and rupture or displacement of intra-ocular structures, usually accompanied by hemorrhage.

Hemorrhage may appear in the anterior chamber or be confined to the vitreous. Blood in the anterior chamber alone is usually readily carried away by the flow of aqueous. In the vitreous absorption is much slower, but in time a remarkable degree of clearing will take place. If it is not complete, large or small particles of fibrin are left floating in the vitreous to project their shadows onto the visual field, or new vessels may proliferate into a clot in contact with the retina, resulting in the organization and absorption of the clot, but leaving a proliferative retinitis.

The first indication in intra-ocular hemorrhage is to stop or prevent further hemorrhage. This can be aided by immobilizing both eyes by bandaging, keeping the patient absolutely quiet and possibly the administration of some preparation of hemostatic serum. After twelve or more hours absorption will be aided by a brisk calomel and saline purge, sweats, and heat to the eye; by this time the patient should be in an oculist's hands. Some of the most frequent later complications are obstruction of the spaces of Fontana and the canal of Schlemm by blood corpuscles leading to increased tension and delayed absorption, and increased tension due to the rupture of the lens capsule and swelling of the lens or to continued bleeding into the vitreous; all of these require prompt treatment and close observation, which only the trained ophthalmic surgeon can render.

The recognition of such things as detached iris (iridodialysis) or detached retina, ruptured choroid, etc., is important and can usually be done only by the oculist.

If the eyeball is ruptured we have the added factors of infection and loss of intra-ocular structures to deal with. We have an open pathway by which sepsis can reach the interior of the eye, and through which iris, ciliary body, choroid, lens etc., may be partially prolapsed. The first thought in all these cases should be conservation; many eyes that at first sight appear quite hopeless can be given some degree of usefulness. No one besides an ophthalmic surgeon has any busi-

ness rendering more than first-aid treatment in one of these cases. The sooner the case is in the hands of the oculist the better, and, I might add, the less that has been done to the eye the better. When the eyeball is broken open any slight rise in the intra-ocular tension may increase the amount of injury by causing greater prolapse of the uvea or more loss of vitreous. This may result from anything but the most careful handling of the lids, from standing, walking, straining, coughing, or any bodily exertion on the part of the patient.

The first-aid measure of greatest importance if the ophthalmic surgeon is not at hand is a well-applied pressure bandage. I want to say here that to see an injured eye come in with a well applied bandage is to me very much the exception. The bandage should give a firm, even pressure, and be secure enough so that it cannot slip. Antitetanic serum should be given as in any perforating wound. The patient should be kept as quiet as possible.

The varieties and complications of perforating eye injuries are too numerous to mention, but let me say again that many apparently hopeless cases will come out with some usefulness, and the first thought always should be to save.

In conclusion I will repeat that for the interest of the individual as well as his employer it is better that every eye injury be treated from the first by an ophthalmic surgeon. There may be a difference of opinion regarding the foreign body on the cornea, but I believe the results would show a lower total number of hours lost and fewer corneal ulcers. Almost every eye man has seen eyes that were lost as a result of careless or improper removal of foreign bodies.

As regards the more severe injuries, there is no argument. However, the man who first sees them can do much toward alleviating the injury or preventing greater damage, by proper handling. He should be able, at the first examination, to recognize the factors which lead to serious consequences and call upon the ophthalmic surgeon early. If these principles are followed we shall have less permanent disability and a minimum loss of time.

#### DISCUSSION

DR. GEORGE E. BENSON (Minneapolis, Minn.): In some of these injuries of the cornea caused by hot emery or hot cinders it is not always possible to accomplish the results by simply removing the foreign body. In very many cases the foreign body has been removed by the general practitioner and he fails to remove the little stain or burned tissue around the foreign body. This usually shows in

the form of a ring, and in most cases it is almost impossible to see this ring without the aid of a lens. It cannot be seen clearly with the naked eye, but if one uses a lens and illuminates from the side I think one will then be able to see that class of foreign bodies.

In cases of foreign body removed with a spud it is well to dilate the pupil, even if we see the patient only once or twice. In cases where it is impossible for us to remove the foreign body and it becomes necessary to send the patient to the oculist, and especially if he has a long distance to travel, it is probably advisable to dilate the pupil with atropin.

With reference to the use of cocaine in the eye; I agree with that, but I really believe the use of cocaine in removing the foreign body many times gives us a little tip as to the condition of the iris in cases where the foreign body has been in a day or longer. The fact that cocaine does not dilate the pupil gives us the tip that there is a beginning iritis and whether or not we should use a little atropin. Also in the removal of a foreign body from the cornea I would emphasize the necessity of advising the patient that we are using atropin with the purpose here of safety, because if we do not do so the patient will after three or four days become very much alarmed if he is not able to see clearly, and especially has this been true with a number of patients who speak very little English.

DR. JOHN STEELE BARNES (Milwaukee, Wis.): If we could only put all injuries of the eye under early treatment we should have no cause for regret. I am glad to say that we are getting our injured eyes, especially from the factories, at the very earliest stage. One factor in this has been the employees' liability law. The workmen now, if injured in the least degree, do not hesitate to go to the doctor, for it is not going to cost them anything and they are not going to take any chances, consequently I am seeing eye injuries earlier and earlier, and my records show a vast difference in the way of bad results. Now most of what might be called major injuries, are very easily converted into minor ones.

The essayist has considered the subject step by step and told the reason why we should institute early treatment. If we have no infection there is no need to worry about any eye injury. Even in an injury so severe that the eyeball is cut open we are not going to have bad results if infection does not develop. Infection is the *bête noire* in eye injuries.

The disposition among too many of the men in treating what they would call a minor accident, is to take it too lightly. I believe every case that comes into our hands should be very carefully examined before anything is done. I had a very striking case a few days ago. The patient had suddenly turned around and caught the edge of a box or some other hard substance across the eye, denuding most of the epithelium from the central portion of the eye, destroying the superficial epithelium and Bowman's membrane down to the stroma of the cornea. The oculist who first saw the case was just going out of town. From the history and casually looking

at the eye he found that the epithelium was denuded and simply put some salve or ointment in the eye and said it would be all right. Had he examined the eye carefully he would not have done that. Two days later I saw the case, infection had started, iritic irritation was present, and the only way I detected that was because of the important point mentioned by Dr. Benson. I used cocaine and got no dilatation. I immediately put in atropin and put the eye at rest for the reason that, aside from the infection and the negative result from the cocaine, I discovered that the pupil of the injured eye was smaller than the other. By careful examination the real condition was discovered. Fortunately, just before I came away yesterday I found that the cornea had all cleared up, and, outside of the dilatation of the pupil which will require another week to recover, the eye was all right. I succeeded in preventing the infection from going farther.

Sometimes there is too much meddlesome interference. It is undoubtedly true that more harm than good comes from trying to do too much. Simple measures are better.

One word more about cocainization for anesthesia. I do not use it always, and I do not use a strong percentage, not more than 2 per cent unless I want to demonstrate iritic irritation. I have never seen any destructive effect on the corneal epithelium from the use of cocaine.

It is very difficult to get ointments that are not gritty. If we can get an ointment that is made perfectly smooth and we are sure, and absolutely sure is not gritty, it is all right. Otherwise the sterile salt solution for irrigation is about as good an agent for the purpose as we can find.

DR. ALFRED M. RIDGWAY (Annandale, Minn.): I wish to ask the essayist as to the particular objection to cocaine, especially freshly prepared cocaine.

DR. COPPS (closing): Both Dr. Benson and Dr. Barnes spoke of cocaine. I still believe it is best not to use cocaine for anesthesia. I have not seen serious results in the removal of foreign bodies, but I have seen corneal ulcers of not very serious type light up severely where cocainization was done. It is the cocaine that causes a slight swelling with softening of the stroma, as well as the epithelium that predisposes to that spread of the ulcerating process.

Answering Dr. Ridgway's question: That would apply whether the solution were freshly prepared or not.

As to the value of cocaine in dilating the pupil and detecting possible iritis; I believe those conditions can be detected without dilatation. If in any of these foreign body cases there is reason to believe that iritis exists, atropin should be used, and one can go ahead with its instillation. My experience has been that we favor the spread of corneal infection by the use of cocaine.

One thing I wanted to emphasize was that any slight corneal abrasion should be detected by careful examination. Also I want to impress on you the value of a bandage wherever there is loss of corneal epithelium. I think the application of a bandage is more important than anything else we can do.



As to ointments; Dr. Barnes' point was well taken. I do not remember that I have ever had trouble with ointments. I have used the ophthalmic ointments put up in tubes, which are, of course, made for that purpose, and they are very fine ointments. I think that is the thing to use, and if one is going to remove foreign bodies from the eye he should have a tube of that ointment; that is, if one is going

to use an ointment he should have that preparation. The tube keeps the ointment sterile. I will say, however, that an ointment should not take the place of other indicated treatment. I believe that mercurochrome is one of the finest things we can use in these cases.

The point I want to emphasize above everything else is the value of a bandage over the injured eye.

## TRANSACTIONS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of March 20, 1924

DR. T. A. PEPPARD, Presiding

The regular monthly meeting of the Minneapolis Clinical Club was held at the Y. M. C. A. at 7:15 P. M. on Thursday evening, March 20, 1924. The usual dinner hour preceded the program at 6:30.

The following case reports were given:

✓ Dr. R. C. Webb reported a case of Subtrochanteric Fracture of the Femur with Application of Lane Plate. (X-ray films were shown)

Mr. C. P., aged 50, fell and fractured his left femur by striking the sharp edge of the sidewalk curb, June 22, 1923. He was taken on a stretcher to an x-ray laboratory and after being convinced that hospitalization was necessary he was taken to a hospital.

The x-ray showed a fracture of the femur immediately below the lesser femoral trochanter. The fracture line was almost directly transverse. The upper fragment was drawn upward and outward, the distal fragment being inward and downward with respect to the proximal fragment. There was overlapping of the edges of the fragments.

He was immediately placed in a Thomas splint and thirty-five pounds extension was placed on the leg. The leg and splint were swung from a so-called Balkan frame of the type popularized during the late war. The leg and thigh were abducted in order to bring the fragments in line. The pull of the iliopsoas muscle, which inserts in the lesser trochanter, together with the powerful muscles inserting in the greater trochanter, tends to bring the upper fragment upward and outward. The fragments were directly in line in an anteroposterior x-ray after a few days' traction, but at this time the ends were one-half inch apart and the upper fragment pointed slightly forward as could be determined by physical examination. A lateral view plate was not obtained. (Illustrated by x-ray films shown.)

On July 5, 1923 (thirteen days after injury), the swelling had subsided and the damaged tissues had reacted to the trauma sufficiently to permit operation. He was placed in extension on a Hawley table, and, through a ten-inch lateral incision over the involved area, the bone was exposed. The findings at operation proved the necessity of open treatment. With the leg in abduction and extension the fragments were in line, but the lower fragment lay at a lower level than the upper fragment and union would have been weak and

unsatisfactory. A Lane plate was applied, care being taken to place no screws near the fractured ends of the bone. A superficial drain was placed in the wound, rubber tube, and a piece of catgut tied to it, permitting its removal the next day without disturbing the dressing. He was placed in a plaster cast which extended from his nipples to his toes on the involved side and to his knee on the opposite side. The posterior half of the cast was cut away from his toes to a point above the knee sufficient to permit flexion of the knee, and this was commenced at the end of three weeks. He was placed on a three-section mattress instead of a fracture-bed. The middle section measured fifteen inches and was a great aid in nursing.

On September 1, he was placed in a Hitzrot-Taylor brace, and on September 17 he went to his home in Omaha. At this time he was walking in his brace, and flexion of the knee was nearly perfect. On November 23 the Lane plate was removed, when he returned to Minneapolis; and in January he was walking about perfectly without the brace. The final x-ray shows perfect union, and in a recent letter he states that the function is also perfect.

✓ Dr. W. A. Fansler reported the following cases:

1. Hemorrhoids in a child of two years. The first case I have to report is of interest not from difficulty of diagnosis, but from the fact that the condition occurred in a child of this age. A child two years of age came in with a history that for the past year the mother had noticed protrusion at the time of defecation. Naturally, I suspected prolapse as the cause; however, examination revealed two large and external hemorrhoids, which, when engorged with blood, were from 1.5 to 2 cm. in diameter. Hemorrhoids at this age are extremely rare. I have never before seen the condition in an infant. Some of my pediatric friends say that they have never observed a case.

2. Internal abscess with marked constitutional symptoms. This case I saw in consultation with a physician of this city. The history of the case as recorded by the patient's physician is as follows: The patient is a female, aged 50, and is unmarried. She has always been rather frail, but never really ill until six months ago, at which time she had all her teeth extracted at one sitting because of pyorrhea. Following this her health immediately began to fail, and she has steadily grown

worse. Her hemoglobin was 22 per cent with R.B.C. of 1,600,000 with various young forms. Her physician felt that it probably was a case of pernicious anemia, although the findings did not definitely prove it.

Her rectal history is as follows: For the past five years she has had periodic attacks of rectal pain, lasting several days. These came on at irregular intervals from two to six months apart. These attacks caused severe pain, which was more or less continuous, but was increased by bowel movement. She had never noticed any discharge or blood. She has had considerable discomfort for the past four months, but for the past two weeks the pain has been very severe, and after bowel movement she has been nauseated and vomited.

Upon examination several skin tags were noticed externally but otherwise the parts appeared normal. Upon manipulating the parts a little pus was seen to exude along the anterior margin of the anal canal. Upon passing a fenestrated anoscope an opening was seen on the anterior wall of the anal canal from which pus was exuding. By pressure about 4 c.c. was milked from this opening. A bent probe revealed a cavity five-eighths of an inch deep.

The patient's condition precluded anything but the most conservative procedure so the cavity was drained by a deep incision and the tags at the base of the abscess cavity removed. This was done three weeks ago and there has been a marked improvement. She has no pain. The nausea has disappeared, and she has lost but one meal since the operation. She no doubt has had this sinus for five years without a diagnosis being made.

Dr. M. Barron reported the following case of Dietl's crisis:

Mr. L. P., aged 54, commercial traveler, consulted me on March 28, 1923, because of attacks of very severe abdominal cramps and stomach trouble.

Family history is negative. His habits are good. He smoked about four cigars a day, formerly smoking ten or twelve cigars.

He stated that his stomach trouble dated back many years. At the age of 15 he had severe attacks of pain in the stomach, which had no relation to the kind of food or to the meals. This lasted about one year. He was then well up to the age of 25, when he developed attacks of very severe cramps, which would come and go, each lasting about five minutes. The attacks would come every year or so and last over a period of a day. About eight years ago the stomach distress became almost constant. He doctored for about one year without any relief. Some diagnosed his condition ulcer. A prominent surgeon in St. Paul said that it was a nervous condition. He went to an internist who took x-ray and told him that he must be operated on at once for gall-stones. He was referred back to the surgeon, who operated on him in May, 1916. He removed the appendix and gall-bladder, but no stones were found. He remained in the hospital for three weeks, but was confined to his house for a long time.

During the next five years he had mild attacks very frequently. Two years ago he went to take out life insurance and was told that he had Bright's disease. He then developed a severe attack of cramps with nausea and vomiting. The vomiting relieved the attack.

In January, 1921, he was under the care of a prominent nerve specialist who kept him in the hospital for

three weeks on a milk diet, and later on a modified milk diet for another six months. He was again x-rayed, but his condition remained about the same.

In July, 1921, he went to an internist who told him his kidneys were rotten and that his condition was entirely hopeless. He then went home and decided to break away from all medical restrictions. He started eating everything and found he was greatly improved. He desisted from consulting any doctors until March, 1923. On March 13 he developed a very severe attack of constant dull pain in the epigastrium. He was nauseated, but could not vomit. On March 25 he felt great distress with a bad taste in the mouth. He was given small white pills, following which he developed twitching of the muscles. His attacks of pain would be so severe that he thought it would drive him crazy, he felt so miserable. Several hypodermics did not relieve the pain. At times he had chills with the attacks of pain in the epigastrium. There was such a sickening feeling in the epigastrium that he would become exhausted. At times he had difficulty in breathing. The pain at times was griping in character. Vomiting would give him relief. He always had been a very active man who liked to work. He worried greatly about his condition. During the past eight or ten years he has always been careful with his diet, avoiding heavy meals. Whenever one of the attacks of pain or cramps came on he found that he had to lie perfectly quiet in one position. The slightest movement to the right or left would immediately initiate a severe cramp. At times he would have twitchings of the muscles of the body, especially of the arms and legs during the attacks.

Physical examination (March 28, 1923) revealed a man 5 feet 6 inches in height, weighing 142½ pounds, being about sixteen pounds underweight; pulse, 72, blood pressure, 122-84; some pyorrhea of the lower teeth; tonsils injected; rhythmical twitchings of masseter muscles; chest showed good expansion; heart, entirely negative; lungs, negative; abdominal wall, thin; scar from previous operation; marked visible peristalsis of bowels. Tenderness to the right and above the umbilicus. A tender mass on the right costal margin, which moves with respiration, probably the right kidney. The left kidney is easily palpable, has a second degree mobility; the right kidney is not as definitely palpable as the left. All reflexes are active. He is very highly nervous.

The blood examination was entirely normal. A large number of urine tests showed the presence of moderate amounts of albumin, a few leucocytes, and many red blood cells. Quantitative examination of an early morning specimen showed 0.03 of albumin with Eschbach; an 11 A. M. office specimen showed 0.1 albumin. The quantities of blood present varied in the different specimens, as did the quantities of albumin. P.S.P. showed 42 per cent the first hour, 175 c.c.; second hour, 19 per cent, 455 c.c.; total 61 per cent in two hours. The Mosenthal test gave good concentration, from 1012 to 1024. There was, however, an increase in the night over the day quantity, the night 12 hours giving 925 c.c., the day 625 c.c. The night specific gravity was lowest, 1012. A Wassermann test was negative.

A diagnosis of either Dietl's crisis or nephrolithiasis was made. Pyelograms showed a very extensive kinking of right ureter. No stones were found with the x-ray. Following this a definite diagnosis of Dietl's crisis was made.



He was sent to Buchstein's to have a properly fitted belt made. About one week after the application of the belt he reported that he was feeling very well. From then on the patient stated that he was feeling absolutely well. He was seen again on January 18 of this year. He stated that he had been entirely well since wearing the belt. He eats everything, works every day and has absolutely no distress as long as he has the belt on. Has felt like a different man since wearing the belt. He gets a sickening feeling if he leaves it off. Has gained in weight, weighing several pounds more than he ever has before.

#### DISCUSSION

DR. GRAVE: Did the injection of the kidney pelvis cause a return of the symptoms?

DR. PEPPARD: One would think that if a kink was ever going to cause pain that one certainly would.

DR. WYNNE: I think the question of Dr. Grave's is a very good one. In almost all of the patients with hydronephrosis we can reproduce the patient's former pain by filling the kidney pelvis, and it is a very good way to prove that the pain complained of is due to some kidney or ureter disease. If the pain produced by injection of the kidney pelvis is a new pain as to location and character, that too is of the greatest importance in helping to eliminate the kidney as the source. I have seen one patient who had considerably more surgical treatment misdirected than had Dr. Barron's patient. I remember her very well because I performed my first nephropexy for her. In her case the surgical procedures were as follows and in sequence: perineal repair, suspension of the uterus, appendectomy, right oöphorectomy, cholecystostomy, cholecystectomy, and even after the last operation she still had the pain in her right side which caused her to seek medical advice from the first. She had a kidney pelvis slightly larger than Dr. Barron's patient, but on filling the pelvis her old pain was immediately reproduced. A nephropexy gave her complete relief.

I think that supporting the kidney with pads is a good deal like wearing a truss for hernia, or a pessary for prolapsed uterus, except that it is a little more so. They are makeshifts to avoid operation. Of course the patient's condition has a lot to do with the physician's decision to use the mechanical appliances. Some of these patients will improve by rest and fattening but a considerable number will lose weight again when they get back to their normal activities.

DR. BARRON: This patient was told at the time that this was merely a try-out.

DR. WYNNE: One thing about these pads is that when placing them the patient will sometimes pinch the kidney, and the pressure will make his condition worse than before. Whenever a patient of mine is going to wear pads I have them fix his harness lying on an incline with the head lowest, as in ptosis cases. I believe it is true that many patients with slight hydronephrosis have much more pain than some of those who have very large hydronephroses. I have seen several patients who had no pain from pelvis measuring 100 c.c.

Dr. E. D. Anderson gave a review of an article on "Anhydremia" by Dr. W. McKim Marriott (Phys. Review, vol. III, No. 2, April, 1923):

When the amount of water eliminated from the body exceeds the intake, plus that produced through metabolic processes, desiccation of the organs, tissues, and body fluids occurs. Different parts of the body vary in regard to their fluid content and also as to the degree of desiccation which takes place when fluid is withdrawn from the body. The muscles, skin, and blood have the most fluid, while the fatty tissues, brain, heart, and skeleton have less. The muscles give up most of the water (67.89 per cent), but 10 to 20 per cent can be lost without functional injury. The skin can give up a considerable amount of fluid without damage. Blood, however, cannot lose much of its water without causing serious impairment of the circulation, which causes damage to the function of all parts of the body. There is a disturbance of metabolism and when sufficient fluid is lost the heat regulatory mechanism is affected. Desiccation of the blood is anhydremia.

*Experimental production of anhydremia:* This may be produced by (a) restricting the fluid intake and (b) by increasing the output. Man has been known to live for eighteen days without taking either food or water. The ingested fluid does not make up the entire available source of fluids, as there is an appreciable amount produced during metabolism. In warm-blooded animals life cannot be maintained unless there is considerable elimination of water even though desiccation takes place. Under ordinary circumstances there is considerable evaporation from mouth and respiratory tract. A larger amount is usually lost through evaporation from the skin. This varies greatly according to the environment. It has been calculated that a man in a temperature of 37° C. with a caloric intake of 3,500 must evaporate eight litres a day in order to maintain a normal temperature. Under normal conditions of temperature, humidity, and work a man loses from 650 to 1,400 c.c. a day by evaporation.

A certain amount of water must be excreted through the kidneys. This varies according to the food taken. There must be a sufficient amount excreted to hold in solution the urea, salts, and end products of metabolism. Ordinarily a man must excrete from 650 to 800 cc. of urine a day. In various ways a man eliminates from 1,000 to 2,000 cc. of water a day. In infants it is two or three times as much in proportion to their size.

*Occurrence of anhydremia in clinical conditions:*—Severe anhydremia occurs in (a) voluntary refusal of water; (b) those exposed to the severe heat of the desert, deep mines, boiler rooms, etc.; (c) excessive vomiting; this is particularly true in infants suffering from pyloric stenosis and in any form of high intestinal obstruction; (d) severe diarrhea.

Severe anhydremia is especially likely to occur in infants, partly due to the fact that they have a high water requirement, partly because they are entirely dependent upon others for the giving of water and they may be given an insufficient amount, and also because they are so prone to develop severe attacks of vomiting and diarrhea.

*The composition of the blood in anhydremia:*—A sudden loss of water from the body affects the blood more than a gradual one, as it gives an immediate concentration of the blood. Later water is given up from the muscles and skin and the blood tends to return to its normal composition unless there is continued loss of fluid above the normal. After a period of dehydration, if water is given, there is an immediate dilution of the

blood which gradually disappears as the body tissues take up the fluid.

Loss of water from the blood causes (1) an increase in the proportion of total solids and in the dried weight of a unit volume of blood; (2) increased specific gravity; (3) increase in the red blood count and in the hemoglobin percentage; (4) increase in concentration of serum proteins; (5) increase in viscosity of the blood; (6) increase in the total non-protein nitrogen and urea; (7) often an increase in the blood sugar; (8) abnormal amount of lactic acid; (9) diminished alkali reserve, carbon dioxide, and bicarbonate combining power of the blood.

The blood volume is necessarily decreased in anhydremia, and the reduction may amount to 40 per cent or more of the total.

*The circulatory system in anhydremia.*—There is a compensatory constriction of the peripheral arterioles and there is a decreased volume flow of the blood through certain parts of the body. There is a greatly diminished volume flow in the extremities. In anhydremic infants, Marriott found the flow of blood per unit volume of extremity to be less than 10 per cent of the normal.

The cardiac mechanism is impaired. This has been demonstrated by the electrocardiograph. It is probably due to impaired circulation through the coronary arteries. The pulse becomes small and rapid. The blood pressure is usually well maintained, probably because of the increased viscosity of the blood.

*The urine and renal function.*—When the colloidal osmotic pressure of the blood approaches the arterial pressure in the renal arterioles, the secretion of urine is greatly decreased. This condition takes place in anhydremia and in severe cases there may be complete anuria. The urine that is secreted has a high specific gravity. Albumin and casts are always present. There are small amounts of reducing sugars in the urine. There is an excess of organic acids, the exact nature of which is unknown. There is evidence of a distinctly impaired functional capacity of the kidney. The phenolsulphonethalein excretion is low and the Ambard coefficient is high.

*The effect upon the gastro-intestinal tract.*—There is poor absorption of fat and protein and when food is given vomiting and diarrhea are very apt to occur.

*Acidosis.*—Dehydration leads to a considerable degree of acidosis. The acidosis is not due to an excessive production of acetone bodies, but is due, at least in part, to the formation of acids in the tissues of the body. When the secretion of urine is much diminished there is a retention of the acids which are normally excreted. The main one is acid phosphate. This is another factor in the production of acidosis.

*The heat-regulating mechanism.*—When marked dehydration takes place, there is insufficient water available for evaporation and this ultimately becomes less than is necessary for the removal of the heat of metabolism. When this occurs the patient develops a fever. This is frequently seen in infants.

*Miscellaneous manifestations of anhydremia.*—There is a very rapid loss in weight. From 10 per cent to 25 per cent of the body weight may be lost in one or two days. The skin becomes dry, grey, and loses its elasticity. The surface if the body may become anesthetic. Salivary secretion stops. The extremities are cold. The respirations are those of air hunger. Trans-

ient deafness and blindness may occur. The patient is irritable during the first stages of anhydremia and later becomes stuporous.

*The treatment of anhydremia.*—Large amounts of water should be given by mouth. When it is impossible to give sufficient amounts this way because of vomiting, it should be given by rectum or in the form of isotonic salt or glucose solutions intravenously, subcutaneously, or intraperitoneally. Marriott advises against the giving of sodium bicarbonate. When the anhydremia has existed for a long time, blood transfusion is of value.

#### DISCUSSION

DR. PEPPARD: It seems to me that this subject is worthy of much more thought and consideration in other conditions. One point in particular which I have in mind is the clinical history of certain cases that we see not infrequently at the General Hospital in cases of cardiac decompensation. Many of our hypertensions that are decompensated come in with the abdomen full of fluid, extremities edematous, and the chest filled. In attempting to get rid of the fluid, very often the Karel diet is started and they will soon start to eliminate very considerably more fluid than they are taking in. Occasionally then these cases develop a delirium or a mania, and it has occurred to some of us that this may possibly be a manifestation of anhydremia. The work in relation to the electrocardiographic signs was done by McCollough in Dr. Marriott's clinic. I have not observed these appearing at a period of dehydration nor have I seen them disappear following it. However that may be simply the lack of proper observation. In these cases, very often, there is coronary disease with abnormal Q-R-S complexes that are in fact due to disturbances of conduction. But, of course, that is not the same thing as is referred to in this work of Marriott's. I have no doubt that the observation is correct and may be better observed in infants where there is no organic change to account for the disturbance of conduction.

DR. MICHAEL: Does he say anything about anhydremia in the toxic states?

DR. ANDERSON: He does speak of it in pneumonia; that many of the symptoms of pneumonia are due to dehydration because the patients do not take sufficient water.

DR. WEBB: Have you had any experience with the test of McClure and Aldrich in which they inject a small amount of saline under the skin and watch the disappearance of the bleb?

DR. ANDERSON: I have never heard of it.

Dr. Erling Hansen read his inaugural paper, entitled "Primary Carcinoma of the Maxillary Sinus, with Review of the Literature."

#### DISCUSSION

DR. CARL W. WALDRON: I have been very much interested in this patient since I first saw her in October last in my first clinic in the Dental College at the University. When she came she had this mass presenting. (Showed plaster-of-Paris cast.) With scalpel and cautery I removed tissue for biopsy and the pathologist's report has been given by Dr. Hansen. I felt at that time that possibly radium seed emanations would give her the one lone chance



rather than application of radium itself, and sent her to Dr. New, but he did not use the emanations. I have seen her at least once a week since that time. I saw her just to-day. She is now in extremis, being unable to retain any satisfactory amount of food, vomiting repeatedly, and almost as soon as she has taken food. The parotid lymphatic gland is now a little larger than my clenched fist; she has a very marked exophthalmos, very marked orbital edema, and very marked displacement of the eyeball itself. The nose is almost filled with polypi; the septum is displaced 3 or 4 cm. to the left side of the nose.

Regarding the statistics concerning carcinoma of the antrum, we are up against the problem of statistics as in many other things in surgery. One trouble is the inclusion in malignant growths of the antrum of the so-called giant-celled sarcoma. This is now called benign giant-celled tumor. In the differential diagnosis, Dr. Hansen did not bring that out. You have these giant-celled tumors which form centrally in the alveolar process; also the sarcomas that may arise externally to the upper jaw or in the peripheral periosteum; we also have the large group of osteogenic sarcomas that may occur in the same region. The differential diagnosis is somewhat difficult. Glandular enlargement occurs later in the sarcoma.

One interesting thing about this patient is that, to my knowledge, she has never had nose-bleed. That is given as a common early symptom—something to make one suspicious about the exact nature of the trouble.

From the diagnostic standpoint, I would like to urge the early use of Caldwell-Luc operation in all cases that are uncertain. I feel that possibly after the first unsatisfactory attempt by the rhinologist to wash out the antrum in this case, the Caldwell-Luc operation might have revealed the true condition and there might have been a chance of saving this woman's life. It is a simple operation, can be done under local anesthesia satisfactorily, and is a good exploratory operation. It permits operation under direct vision, and you have a good chance to see what is going on.

When we consider the etiology we might line it up along side of other malignant conditions in the mouth. Some local irritation is often the cause of these conditions. Many cancers in the mouth arise in connection with imperfect dental work and any prolonged irritation from it. This all adds another little bit of evidence to what we know about taking care of any infection about the nose and throat that may become malignant growth, or start a malignant process.

DR. KENNETH PHELPS: I would like to compliment Dr. Hansen on his paper. Carcinoma of the antrum is certainly an unusual thing, and for that reason the diagnosis is often overlooked. I do not want more than merely to report one such case I saw while at Johns Hopkins Hospital. This was a woman

who had well-developed carcinoma of the antrum, and our treatment was entirely surgical. We did a resection of the upper jaw, removed the eye, opened the ethmoid and sphenoid, and got quite a nice result when she left the hospital, but I do not know how long she lived.

I think since then Dr. Gordon New's treatment with cautery has been published, and it would now probably be used instead of the radical operation.

Carcinoma of the antrum may occur and surely when we are in doubt, as Dr. Waldron has said, we should explore the antrum by some method enabling us to see what is in there and have a good look. The most common treatment of chronic antrum infection is intranasal and for this reason alone carcinomas are not recognized because they are not seen.

DR. CAMP: I would like to say a few words about the pathology of the tumors. In our collection at the University we have only four or five specimens of epithelioma of the maxillary sinus. Most of these are squamous cell tumors. The normal maxillary sinus is lined by mucous membrane having a pseudostratified epithelium with columnar surface cells which dip down to form tubular glands. In the pathogenesis of these squamous cell tumors there has been a metaplasia of the columnar epithelium to squamous type. This means that the tumor was preceded, in all probability, by a chronic inflammatory process. I recall one case of chronic hyperplastic sinusitis in which the curettings show a markedly cystic mucous membrane bordering on adenoma which is similar to the changes occurring in the endometrium.

We would expect these tumors to progress inwards through the fontanel on the nasal wall of the sinus but more often they progress or extend through the external wall or floor and through the hard palate.

DR. PEPPARD: Is there any element of importance in regard to metastases occurring in distant organs in these cases?

DR. McCARTNEY: I do not believe that I have anything to add. As to the frequency of sarcoma of the antrum, I have the impression that our records at the University show more sarcomata than carcinomata. The change in the type of epithelium is probably a metaplasia, such as is rather frequently seen in tumors in other portions of the body.

DR. HANSON (closing): So far as I could find, metastasis, if it occurred at all, was very late. I do not remember of any case in my review of the literature in which metastases occurred in distant organs.

Ewing mentions that metastases occurred in the mediastinum and into the lungs.

J. C. MICHAEL, M.D.  
Secretary.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
Minnesota, North Dakota, South Dakota and Montana  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

MAY 15, 1924

## MR. AND MRS. GENERAL T. APATHY

The surrounding country, embracing large areas and many choice spots in the United States, has recently been dishonored by the visit of this pair, Mr. and Mrs. General Tired Apathy. One would say, without a moment's hesitation, that the visit has been entirely unexpected and entirely uncalled for, and as they have moved on from place to place departure was hailed with glee. Never in our history, referring to the years that the present generation has lived, have we been so annoyed by prevailing conditions. This couple, arising out of the troubled waters of some unfathomed sea, have brought with them all sorts of depressing things that involve all classes of people. And it makes one speculate with King Solomon when he wrote the proverb in which he said, "There are three things, yea, four, that I do not understand: The flight of an eagle in the air, the way of a serpent upon a rock, the way of a ship in the midst of the sea, and the way of a man with a maid."

General Apathy has evidently stirred up a good deal of trouble among the politicians, for they seem to have lost their heads and their wits. They have delved into things without any rhyme or reason, and it is quite definitely understood that many of them do not know what they are doing except talking with their mouths and using nothing above their eyebrows. Rather strange when you come to think of it, how much a man can talk and how little he can say, and showing

at the same time how little he can think. Mr. Apathy has also visited his displeasure upon the voter, throwing him into his machine and making him apathetic. Mrs. Apathy has not been idle either. She has gone around among the women and has involved them very deeply and has led them away from their obligations and their debt to the public and their interest in matters of policy and politicians. Mr. General Apathy and his wife have both, apparently, had a great deal of influence upon the young people, for they seemingly have left them, where their devastating visit has occurred, without powers of observation, consideration, or a sense of their obligations of duty and loyalty. They have taken away most of the good in the young people and left them with nothing but a shell, which eventually will be filled with sand—not grit!

The visit of this pair, too, has been productive of a tremendous class of pessimists who are thriving on their faultfindings and forebodings, and their eagerness to destroy where constructive methods should be employed. The optimist is nearly overwhelmed. He is frequently deprived of his hopeful looking forward; he is told very brusquely that the times are so hard that nothing can save the nation. And this sort of talk is infesting the people to such a degree that it is difficult for many of them to hang on even though by determined methods.

The medical profession comes under the baneful influence of these visitors. Some of the doctors are boastfully talking of their enormous business and their enormous incomes, leading one to infer that they, they only are leading spirits in medicine. But, if the truth were told and if every doctor was honest, he could say simply and emphatically that medical matters are at low tide and still not be a pessimist about it, because he knows full well, if he has any optimism in him, that the people are coming back. They are slow in rising from their fallen state, but they will come with a vigor and a rush just as they have done through all the centuries; and yet many medical men are apathetic—they don't very much care what goes on in or about medicine if they can just hold on to their possessions of whatever kind until prosperity meets them while they are working. It is quite true that most medical men have been swamped, almost deluged, by unnecessary medical meetings, but that need not deter a man who is really in earnest from attending to what he can, doing his part of the work and keeping up the optimistic side of the medical practice. For instance, it was quite evident in



our Clinic Week that a great many men were just indifferent to whatever happened. It is not likely they were lacking in material to present, but they simply did not care, for instance, whether we had a Clinic or not in Minneapolis this year. But, as usual, the men who were interested came to the front, and gave their demonstrations or talks with the same vigor that they have shown in the past seven years. It is true, too, that a great many doctors were indifferent to the success of the Health Exposition, and some of them went out of their way to express their lack of appreciation. Yet it was well done, well thought out, and well carried out, and the people, the public, have profited thereby.

If every medical man would put over his desk a sign that indicated he was optimistic from now on he would not only do himself good, but he would help his fellow practitioners. There is a grave tendency in the younger men to let up on work, to conspire to get out of what they do not want to do. The result is that out of the several hundred who belong to a medical society, the burden of responsibility is carried by the few.

It seems reasonable to infer that the visit of Mr. and Mrs. General Apathy has been concluded in Minneapolis and its surrounding territory, and their departure is such as has been inferred in an old Mormon saying: "He kicks him downstairs with such infinite grace, one would think he was handing him up." As a matter of fact, Mr. Apathy and his female friend have been kicked out of town, and their entertainers have sworn that they will go back to work.

#### MINNEAPOLIS CLINIC WEEK

One of the men from out of town who was in Minneapolis last week and took in the Clinic, said it had grown into a Minneapolis institution, and that they all looked forward to it year after year, which is a very complimentary statement, gratuitously offered and gratefully accepted.

Minneapolis Clinic Week, considering all of the obstacles which had to be met, was really much more successful than its Executive Committee had hoped for. There were not as many present as last year, about 130 men registering from outside the Twin Cities, which the Committee thought a very good attendance considering the lack of money and inability to travel, as well as the time of year and the rainy season and the lateness of our programs.

Those who came had an opportunity to try out two days of dry clinics, and so far as we are

able to discern the guests of Minneapolis approved of the dry clinics and of the hospital clinics, as well. There seems to be more and more of a tendency to limit the scope of attendance and of the number of hospitals which are successful in their clinic work, consequently the larger audiences were found at the Minneapolis General Hospital and the University Hospital. Of course, the audiences at the Unitarian Church, where the dry clinics were given, were very satisfactory, about a hundred men being in one audience.

A number of men who were to give clinics were disappointed in their material and were obliged to read or talk without the presentation of cases. But the men who presented patients for diagnostic demonstrations with history and observation, with apparatus, etc., were very highly commended, and it is quite evident that if a patient is in a clinic, and comments and descriptions or demonstrations are given, the clinic makes a more lasting impression.

The clinicians tried to present cases that would fall under the observation of the men of the country, and nothing was presented of an unusual type or simply as a curious thing in medicine. Lantern-slide demonstrations, chart work, and other methods of bringing the patients before the audience were used and were successful. Had it not been for the stringent financial conditions all over the country we should have had a larger attendance, although the Clinic would have been the same. Hence the Minneapolis Clinic institution will be continued until either it wears out or it is found advisable to discontinue it on account of the number of medical meetings constantly taking place.

#### THE HEALTH EXPOSITION IN MINNEAPOLIS

Some of our readers may tire of hearing so much about the Health Exposition, but it demonstrated very forcefully its educational and practical value, and proved to be an attractive exposition from every point of view. We regret that the Committee were unable to advertise it more thoroughly, and particularly to get the attractiveness of it into the homes of the people. It showed that evidently the awakening to public health and public service is very slow. The inrush of crowds did not begin until Wednesday, although there was a good audience on Tuesday night. But on Wednesday, Thursday, Friday and Saturday the immense building was swarming with people, who heard many things that were

good and many common-sense talks and suggestions on public health. The necessity of keeping fit, and the necessity of living longer were brought out by demonstrations of all kinds.

The speakers that came from a distance, Chicago mostly, but also from other cities, as well, proved a very large drawing card, and the audience in the annex of the Armory crowded the benches and seemingly appreciated the effort of the speakers and the demonstrations that were put on.

The Exposition proved that a very large number of organizations are at work in some department of public-health improvement—something that does the individual, as an individual and in a class, an enormous amount of good.

The exhibitors who were putting on displays on a commercial basis had very attractive booths, and they contributed very greatly to the success of the Exposition. Sometimes it seemed very strange that things were exhibited there that seemingly had nothing to do with public health, but in every instance there was a practical application, from photography to washing machines, from drugs to pamphlets, and from cards to samples. The examination of children and adults was such a new feature that the opportunity was given to a large number. We must say, at this point, that the doctors of Minneapolis turned out for examination work in full numbers, willingly and cheerfully, and contributed much to the success of the work. Many of the exhibits were more than spectacular, yet they were all instructive, and the children were very much impressed. It is rather unfortunate that the high school students did not have a better opportunity to see the Exposition. They either deemed themselves aloof from such things, or they, with a great many other of the younger set, are not especially interested in public health—even less than they are in their own health.

The American Medical Association had an interesting booth and demonstrated the number of quacks and nostrums that are flooding the country. It gave its reasons and evidences against the quack, and the patent-medicine dealer, and in that way must have done much service in the education of the crowds that surrounded the booth.

The University of Minnesota made a wonderful display from every angle, from manikins to pathological specimens, from instructions in biology to instructions in primitive life—demonstrations which everyone should know something about; and, if the University ever decides to put

out a program of their display, it will in itself be highly instructive.

The Executive Committee of the Health Exposition, together with the staff of workers who came to assist Mr. Logsdon, deserve a great deal of praise for the time they gave to committee meetings and for the effort they put forth to demonstrate what medical men can do. And the Hennepin County Medical Society will lose nothing by its endorsement of the Health Exposition. It may pride itself, too, on the fact (and the public should know) that the Exposition was financed by the Hennepin County Medical Society men, who raised a guarantee fund that would seem almost incredible but proved to be true; and the contributions of the medical men in money made with the greatest cheerfulness, and the universal comment was that the Hennepin County Medical Society got off much better than they had anticipated.

## CORRESPONDENCE

### ORTHOPEDIC CLINIC

TO THE EDITOR:

On March 25, at the invitation of the Milbank District Medical Society, Dr. Emil S. Geist, orthopedic specialist of Minneapolis, assisted by Dr. Clara E. Hayes of the State Division of Child Hygiene, and Miss Florence E. Walker, R. N., State Supervisor of Public Health Nursing, held a clinic for crippled children at Milbank, S. D.

Children were referred to the clinic by physicians of the district. Twenty in all were examined and recommendations for treatment were made. In most of the cases the treatment was recommended to be carried out by the local doctors. Three of the cases were such that the State Division of Child Hygiene will give financial assistance in their surgical treatment.

Among those examined were cases of club-foot, rickets, cranial defects, multiple arthritis, and post-infantile paralysis. In the latter cases Dr. Geist emphasized the great importance of preventing the dread disease which has caused such hopeless crippling of thousands of children, by considering it a highly contagious disease and observing the strictest quarantine and every possible prophylactic measure.

About forty members of the District Society attended the clinic. The physical examinations



and explanation of the conditions found and principles of treatment were instructive and exceedingly interesting.

After the clinic, which continued from one until six o'clock P. M., the physicians of Milbank entertained the visitors at a very delicious dinner served at the St. Hubert Hotel. At the evening session Dr. F. E. Clough, President of the South Dakota State Medical Society, gave an able and instructive address on "Bone Surgery."

Respectfully,

CLARA E. HAYES, M.D.

Waubay, S. D., May 5, 1924.

## BOOK NOTICES

**THE CARE OF THE BABY.** A manual for mothers and nurses, containing practical directions for the management of infancy and childhood in health and disease. By J. P. Crozer Griffith, M.D., Professor of Diseases of Children in the University of Pennsylvania. Seventh edition thoroughly revised; 12 mo. of 478 pages with 104 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, \$2.50 net.

During the last five years there has been a veritable flood of popular books for mothers and nurses on the care of the baby. Some of these books contain nothing new, are badly written, and are of no benefit to anyone except possibly the writer and the publisher. "The Care of the Baby," by Dr. J. P. Crozer Griffith, is an exception. Dr. Griffith first wrote the book in 1895, and since then he has revised it seven times. Each revision shows a sincere attempt to keep abreast of the times. The last edition (1923) is a mine of information. The first chapter on Pregnancy, by Prof. Barton Hirst, is clearly written and easy to understand. The second and third chapters are devoted to a detailed description of the normal anatomy and physiology of the baby. The next two chapters take up in a most practical way the general care and the clothing of the baby.

The reviewer believes that the chapter on infant feeding deserves criticism. The author's rule of nursing is "every 2 or 2½ hours during the first 4 weeks of life and from this time up to weaning, every 2½ or 3 hours, and later every 3 or 4 hours." The author objects to giving artificial food at five or six months. He recommends beginning of weaning at ten or eleven months. The majority of pediatricians advise the four-hour schedule, start artificial feeding at five or six months, and begin the weaning of babies at seven or eight months. The rest of the book is replete with practical facts about sleep, exercise, rational habits for infants, and, lastly, a chapter on the common diseases of infants and children—their recognition and management. This is the best English book on this subject that the reviewer has read.

—MAX SEHAM, M.D.

**DIAGNOSTIC METHODS.** A guide for history taking, making of routine physical examinations, and the usual laboratory tests necessary for students in clinical pathology, hospital internes, and practicing physicians. By Herbert Thomas Brooks, A.B., M.D., F.A.C.P., Professor of Clinical Medicine, College of Medical Evangelists. Fourth edition. Cloth, price \$1.75. Page 109, with 52 illustrations. St. Louis; C. V. Mosby Company, 1923.

"Diagnostic Methods" is a small hand-book of about one hundred pages devoted to brief descriptions the common laboratory procedures, as well as the routine of a history and physical examination of the hypothetical case.

The tests are described very concisely, and at the end of each chapter the clinical applications of the various laboratory findings are summarized.

The book is meant to be used in conjunction with a more complete reference and provides a rapid means of carrying out the technic of the tests without extensive reading. As an aid in the microscopic analysis, pen and ink drawings are available.

A brief outline of the apparatus and chemicals necessary for a physicians laboratory completes the book.

—C. W. BRUNKOW, M.D.

**PHYSIOTHERAPY TECHNIC. A MANUAL OF APPLIED PHYSICS.** C. M. Sampson, M.D., St. Louis; C. V. Mosby Company, 1923.

Physiotherapy is not a new feature in medicine, but its extensive development took place during the reconstruction period of the World War. Dr. Sampson had special opportunity to take part in this development and to observe its results in the Veteran Bureau Service, both at the Walter Reed and other hospitals. The results of these studies appear in a book of over 400 pages giving a detailed technic. He lays special stress on the ultraviolet light and diathermia, both direct and indirect. The success of the reconstruction gives encouragement to a more scientific study of this subject than the profession has given it, and the book of Dr. Sampson, containing twenty-eight chapters, will help materially both in this study and in its application to the properly selected cases.

—C. A. DONALDSON, M.D.

**MENTAL DISORDERS.** By Francis M. Barnes, Jr., M.A., M.D., Associate Professor of Nervous and Mental Diseases, St. Louis University Medical School, etc., St. Louis: C. V. Mosby Co., second edition, 295 pages. 1923.

This book is an outgrowth of the author's previous "Notes on Mental Diseases," and also "Introduction to the Study of Mental Diseases." His intention is that this book be put in the hands of medical students as a brief outline of psychiatric principles with as little incumbrance of unnecessary details as possible. This, to be sure, is always a difficult task. The range of subjects in the different chapters, however, demonstrates that he covers the field of psychiatry pretty well.

One chapter is devoted to "Mental Hygiene and Social Psychiatry," subjects which have not yet found their way into all the present-day text-books on mental diseases.

The reviewer is convinced that this book can be safely recommended as a hand book and should be offered as very profitable reading to the general practitioner, as well as to the medical student.

—J. C. MICHAEL, M.D.

## NEWS ITEMS

Dr. Thos. P. Martin has moved from Mayville, N. D., to Gary, S. D.

Dr. Carl M. Oberg, of Minneapolis, has gone to Europe for special study.

The Southern Minnesota Medical Association will hold a one-day meeting in Mankato on May 19.

The business men of Miller, S. D., are planning to provide funds to erect a hospital building for that city.

The Northern Minnesota Medical Association will hold its annual meeting in Duluth on August 4 and 5.

The North Dakota State Dental Association holds its annual meeting in Grand Forks on June 4, 5, and 6.

Dr. A. L. Kuske, of Minneapolis, has moved to New Ulm, and will do eye, ear, nose, and throat work exclusively.

The American Medical Association meets in Chicago on June 9-13, the sections meeting on the 11th, 12th, and 13th.

Dr. C. E. Gray, of Rush City, has sold his hospital and practice to Dr. A. E. Holmes, formerly of Aberdeen, S. D.

The Twin Cities, and, indeed, the entire Northwest, will send a large number of men to the meeting of the A. M. A., next month.

The South Dakota State Medical Association holds its annual meeting next week (May 20 and 21) at Mitchell. The program appears below.

Mr. R. H. Coombs, formerly health officer at Berlin, N. H., has been appointed executive secretary of the Hennepin County Public Health Association.

The Southwestern Minnesota Medical Society meets at Luverne on Thursday, May 22. Dr. E. L. Perkins, of Sioux Falls, S. D., will present a paper at this meeting.

The annual two weeks intensive study course for physicians and surgeons opens at the Uni-

versity of Minnesota on the 26th of this month. The course of study appears below.

Duluth will seek a branch of the State psychopathic clinic for the study of defective, backward, and subnormal children, which the Board of Regents of the University can grant.

Dr. Finkelstein, of Berlin, Europe's most noted pediatrician, visited Rochester last week. He spoke in very high terms of the work in children's diseases being done in this country.

Dr. H. J. Rowe, Secretary of the North Dakota State Medical Association, is doing substitute work for Dr. F. W. Fergusson at Kulm, N. D., and may remain there two or three months.

More than one hundred twenty-five medical men outside of the Twin Cities registered at the meeting of Minneapolis Clinic Week held last week. The program proved entirely satisfactory.

Bids for the erection and completion of the Todd Memorial and the Cancer Institute buildings at the University of Minnesota, will be received until tomorrow, and will be opened in a few days.

We again call attention to the interesting meeting of the staff of the Lymanhurst and Parkview Hospitals on May 27, when Dr. E. L. Tuohy, of Duluth, and Dr. S. A. Slater, of Worthington, will present interesting papers.

Dr. Thomas B. Francis, who formerly practiced in Edgerton, died last week at the age of 68. Dr. Francis was a graduate of Rush, class of '79, and came to Minneapolis in 1875. He retired from practice some years ago.

The American Association of Thoracic Surgery and the American Society of Clinical Pathologists meet in Rochester, Minn., next month, on the 5th, 6th, and 7th, with a joint meeting on the evening of the 5th and with dry and operative clinics on the 7th.

The report that one Pierson W. Banning, of Los Angeles, Calif., had received an award of \$10,000 from a reported Benjamin Franklin fund for a book by him on "Mental and Spiritual Healing" was a pure fake, which Banning now admits he "put over" just for fun.

The Huron (S. D.) Medical Society met on May 8, and talks were given on the following subjects: "Collections," by Dr. J. F. McKie, of Wessington; on "Static Defects of the Feet," by Dr. H. D. Sewell, of Huron; and on "Pelvic Infections," by Dr. O. R. Wright, of Huron.



Rush graduates in South Dakota, of whom there are more than eighty, will have a meeting and dinner on Tuesday, May 20, at the meeting of the State Association at Mitchell. Dr. F. E. Clough, Rush '02, will preside, and Dr. E. C. Rosenow, Rush '02, of Rochester, will be the Society's guest.

Monday, May 12, National Hospital Day, was observed at Mounds Park Sanitarium by the dedication of a bronze tablet presented by the Alumnæ of the Mounds School of Nursing in memory of Miss Esther Kirbach and Miss Anna Dahlby, two graduates of the school who gave their lives in service to their country during the war.

Dr. Louisa E. Boutelle, formerly Director of Child Hygiene for the State of North Dakota, and Miss Edith Olson, R. N., former assistant to Dr. Boutelle, have been added to the staff of the South Dakota Division of Child Hygiene for the purpose of assisting with a series of prenatal and child health clinics in twenty-five counties which do not now have and most of which have never had the services of a public health nurse.

The body of Dr. Fred E. Fyle, of Geddes, S. D., who disappeared on December 11, was found last week five miles from Yankton, in a creek, over which he had evidently attempted to cross in the night, not seeing that the bridge had been washed away. He was driving from Sioux City, Iowa, to Geddes, when the accident occurred. Dr. Fyle died at the age of 50. He was a graduate of the University of Toronto, Canada, class of '07.

The sixteenth annual commencement exercises of the Mounds School of Nursing conducted by the Northwestern Baptist Hospital Association in connection with Mounds Park Sanitarium, Midway Hospital, and Merriam Park Hospital will be held on Friday evening May 16th at the First Baptist Church, St. Paul. Dr. Charles R. Ball, member of the School Faculty and Rev. S. P. Shaw, Sioux Falls, S. D., will be the commencement speakers. The diplomas will be conferred upon the graduates by the President of the Association, Dr. George Earl.

**PROGRAM OF THE ANNUAL MEETING OF  
THE SOUTH DAKOTA STATE MEDICAL  
ASSOCIATION AT MITCHELL,  
SOUTH DAKOTA**

May, 20th and 21st, 1924

**Tuesday, May 20th**

9:30 A. M.—The Nervous System. Dr. Walter Sheldon, Chief of Department Nervous Diseases, Mayo Foundation, Rochester, Minn.

10:30 A. M.—Diseases of the Heart. Dr. A. D. Dunn, formerly Professor of Medicine, Creighton University, Omaha, Nebraska.

2:00 P. M.—Chest Conditions Simulating Tuberculosis, illustrated. Tuberculous Joint Diseases. Dr. J. S. Pritchard, President Mississippi Valley Tuberculosis Association, Battle Creek, Mich.

4:00 P. M.—Selectivity of Bacteria for the Nervous System, illustrated. Dr. E. C. Rosenow, Chief of Department Experimental Medicine, Mayo Foundation, Rochester, Minnesota.

8:00 P. M.—Child Welfare. Dr. F. W. Schlutz, Minneapolis, Minn.

8:00 P. M.—Relations of Experimental Medicine to Present-Day Life. Dr. E. C. Rosenow, Rochester, Minnesota.

8:00 P. M.—Rollier's Work with Sunlight and Sanatorium Treatment Combined with Surgery among the Swiss Children, illustrated. Dr. J. S. Pritchard, Battle Creek, Mich.

**Wednesday, May 21st**

9:30 A. M.—Pediatric Clinic. Dr. F. W. Schlutz, Professor Pediatrics, University of Minnesota, Minneapolis, Minn.

10:45 A. M.—The Anatomy of the Accessory Sinuses of the Nose, illustrated, Exhibition of Specimens. Dr. J. A. Pratt, Assistant Professor Eye, Ear, Nose, and Throat, University of Minnesota, Minneapolis, Minnesota.

2:00 P. M.—Cancer of the Breast and Uterus. Dr. F. L. Adair, Associate Professor of Gynecology, University of Minnesota, Minneapolis, Minn.

4:00 P. M.—Orthopedics. Dr. Wallace Cole, Chief Surgeon Shriners Hospital, St. Paul, Minnesota.

**1924 SHORT COURSE FOR PRACTITIONERS  
GIVEN BY THE UNIVERSITY OF  
MINNESOTA**

**Medicine**

**Monday, May 26th**

1:00-2:20 P. M.—General Rounds. Dr. A. S. Hamilton and Staff. University Hospital.

2:30-3:50 P. M.—General Rounds. Dr. S. M. White and Staff. University Hospital.

4:00-5:00 P. M.—Pathological Clinical Conference. Dr. E. T. Bell, Dr. S. M. White and Staffs. Institute of Anatomy.

**Tuesday, May 27th**

10:00 A. M.-12:00 M.—Clinic, Cardiovascular Diseases. Dr. H. L. Ulrich, Minneapolis General Hospital.

1:00-2:20 P. M.—Movable Kidney. Dr. M. Barron. Millard Hall.

2:30-3:50 P. M.—Eczematoid Ring-worm of the Skin. Dr. John Butler. Millard Hall.

**Wednesday, May 28th**

8:30-10:00 A. M.—Diabetes. Dr. C. B. Drake. Ancker Hospital.

1:00-2:20 P. M.—Gastric Ulcer. Dr. A. R. Hall. Ancker Hospital.

2:30-3:30 P. M.—Epilepsy. Dr. E. M. Hammes. Ancker Hospital.

**Thursday, May 29th**

1:00-2:20 P. M.—Syphilis. Dr. H. G. Irvine. Millard Hall.

2:30-3:50 P. M.—Clinical Lecture. Dr. E. T. F. Richards. University Hospital.

4:00-5:00 P. M.—Etiology and Treatment of Scarlet Fever. Dr. G. E. Fahr. University Hospital.

### Friday, May 30th

1:00-2:15 P. M.—Pathological Clinical Conference. Dr. B. J. Clawson, Dr. H. L. Ulrich and Staffs. Minneapolis General Hospital.

### Saturday, May 31st,

8:30-10:00 A. M.—Heart Clinic. Dr. C. B. Drake. Ancker Hospital.

### Monday, June 2nd

1:00-2:20 P. M.—General Rounds. Dr. A. S. Hamilton and Staff. University Hospital.

2:30-3:50 P. M.—General Rounds. Dr. S. M. White and Staff. University Hospital.

4:00-5:00 P. M.—Pathological Clinical Conference. Dr. J. S. McCartney, Dr. S. M. White and Staffs. Institute of Anatomy.

### Tuesday, June 3rd

10:00 A. M.-12:00 M.—Medical Clinic. Dr. T. A. Peppard. Minneapolis General Hospital.

1:00-2:20 P. M.—Essential Hypertension and Nephritis. Dr. M. Barron. Millard Hall.

2:30-3:50 P. M.—Visceroptosis. Dr. F. H. K. Schaaf. Millard Hall.

### Wednesday, June 4th

8:30-10:00 A. M.—Intravenous Chemotherapy. Dr. J. A. Lepak. Ancker Hospital.

1:00-2:20 P. M.—Treatment of Cardiac Decompensation. Dr. A. R. Hall. Ancker Hospital.

2:30-3:30 P. M.—Protein Sensitization. Dr. E. T. Hermann. Ancker Hospital.

### Thursday, June 5th

1:00-2:20 P. M.—Diabetes. Dr. A. H. Beard. University Hospital.

2:30-3:50 P. M.—Clinical Lecture. Dr. E. T. F. Richards. University Hospital.

4:00-5:00 P. M.—Classification of Heart Disease. Dr. G. E. Fahr. University Hospital.

### Friday, June 6th

1:00-2:15 P. M.—Pathological Clinical Conference. Dr. W. A. O'Brien, Dr. H. L. Ulrich and Staffs. Minneapolis General Hospital.

### Saturday, June 7th

8:30-10:00 A. M.—Intestinal Infestation. Dr. H. Oerting. Ancker Hospital.

## Surgery

### Monday, May 26th

8:30-10:00 A. M.—Urologic Clinic. Dr. F. R. Wright. University Hospital.

10:10 A. M.-12:00 M.—Plastic Surgery Clinic. Dr. H. P. Ritchie. University Hospital.

10:30 A. M.-12:00 M.—Minor Surgical Clinic. Dr. James A. Johnson, Dr. J. M. Hayes. University Dispensary.

10:30 A. M.-12:00 M.—Proctology Clinic. Dr. W. A. Famsler. University Dispensary.

1:00-2:20 P. M.—Urologic Clinic. Dr. A. G. Wethall. University Dispensary.

1:00-2:20 P. M.—Orthopedic Clinic. Dr. C. A. Reed, Dr. P. W. Giessler. University Dispensary.

### Tuesday, May 27th

8:30-10:00 A. M.—Diagnostic Clinic. Dr. J. F. Corbett. Minneapolis General Hospital.

4:00-5:00 P. M.—Animal Surgery (to groups of 3). Dr. A. L. Cameron. Millard Hall.

### Wednesday, May 28th

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. A. R. Colvin. Ancker Hospital.

4:00-5:00 P. M.—Animal Surgery (to groups of 3). Dr. A. L. Cameron. Millard Hall.

### Thursday, May 29th

8:30-10:00 A. M.—Diagnostic Clinic. Dr. A. L. Cameron. University Hospital.

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. A. C. Strachauer. University Hospital.

10:30 A. M.-12:00 M.—Minor Surgical Clinics. Dr. F. S. McKinney, Dr. A. F. Bratrud. University Dispensary.

1:00-2:20 P. M.—Urologic Clinic. Dr. W. J. Kremer. University Dispensary.

### Friday, May 30th

8:30-10:00 A. M.—Diagnostic Clinic. Dr. E. C. Robitshek. Minneapolis General Hospital.

8:30-10:00 A. M.—Urologic Clinic. Dr. Oscar Owre. Minneapolis General Hospital.

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. Frederick Olson. Minneapolis General Hospital.

2:30-5:00 P. M.—Cadaver Surgery. Dr. A. L. Cameron. Anatomy Bldg.

### Saturday, May 31st,

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. John Abbott. Ancker Hospital.

### Monday, June 2nd

8:30-10:00 A. M.—Urologic Clinic. Dr. F. R. Wright. University Hospital.

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. A. C. Strachauer. University Hospital.

10:30 A. M.-12:00 M.—Minor Surgical Clinic. Dr. James A. Johnson, Dr. J. M. Hayes. University Dispensary.

10:30 A. M.-12:00 M.—Proctology Clinic. Dr. W. A. Famsler. University Dispensary.

1:00-2:20 P. M.—Urologic Clinic. Dr. A. G. Wethall, Dr. P. W. Giessler. University Dispensary.

### Tuesday, June 3rd

8:30-10:00 A. M.—Diagnostic Clinic. Dr. J. F. Corbett. Minneapolis General Hospital.

4:00-5:00 P. M.—Animal Surgery (to groups of 3). Dr. A. L. Cameron. Millard Hall.

### Wednesday, June 4th

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. A. R. Colvin. Ancker Hospital.

4:00-5:00 P. M.—Animal Surgery (to groups of 3). Dr. A. L. Cameron. Millard Hall.

### Thursday, June 5th

8:30-10:00 A. M.—Diagnostic Clinic. Dr. G. R. Dunn. University Hospital.

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. A. A. Law. University Hospital.

10:30 A. M.-12:00 M.—Minor Surgical Clinic. Dr. F. S. McKinney, Dr. A. F. Bratrud. University Dispensary.

1:00-2:20 P. M.—Urologic Clinic. Dr. W. J. Kremer. University Dispensary.

### Friday, June 6th

8:30-10:00 A. M.—Diagnostic Clinic. Dr. A. A. Zierold. Minneapolis General Hospital.



8:30-10:00 A. M.—Urologic Clinic. Dr. Oscar Owre.  
Minneapolis General Hospital.  
10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. Fred-  
erick Olson. Minneapolis General Hospital.  
2:30-5:00 P. M.—Cadaver Surgery. Dr. A. L.  
Cameron. Anatomy Bldg.

#### Saturday, June 7th

10:10 A. M.-12:00 M.—Diagnostic Clinic. Dr. John  
S. Abbott. Ancker Hospital.

#### Static Machine Wanted

Mica preferred. Give price and condition of ma-  
chine. Address 86, care of this office.

#### Good Opening for a Physician

In a Minnesota City of over 8,000 population.  
Good hospital facilities. Address 81, care of this  
office.

#### Minneapolis Office Location Offered

Excellent location for physician on a busy corner  
in Minneapolis is offered. Reception-room with an  
established dentist. Address 92, care of this office.

#### X-Ray Machine for Sale

A Standard oil-transformer, big type x-ray ma-  
chine, just like new, for sale at a reasonable price.  
Oil transformer brand new. Address 93, care of  
this office.

#### Small Hospital Equipment for Sale

Complete equipment of a 12-bed hospital is offered  
for sale. Equipped for general service, surgery, and  
obstetrics. Address inquiries to P. O. Box 135, Elk  
River, Minn.

#### Temporary Work Wanted

By a competent physician licensed in Minnesota  
and North Dakota. Can give the best of references.  
Ten years experience; available at once. Address  
79, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 LaSalle Build-  
ing, Minneapolis, to be sublet by Drs. Willson,  
Cabot, & Wohlrabe. For information call at the  
office or telephone Main 3220.

#### Good Location for a Physician

Doctor's office on prominent corner over drug-  
store in new residential district of St. Paul. Price  
of office and reception-room furniture about \$500.  
Address 85, care of this office.

#### Practice for Sale in Minnesota

In town of 5,000, county-seat. Railroad town.  
Only four other active physicians. For price of  
equipment only. Must act quickly. Reason for sell-  
ing sickness. Scandinavian physician preferred. Ad-  
dress 83, care of this office.

#### Physician's Office in Minneapolis for Rent for Morning Hours

I will rent my office in the LaSalle Building for  
the morning hours at a very reasonable rental.  
Please call at 341 La Salle Building.

#### Auto-Kamp Trailer for Sale

Late model with complete equipment, including  
tent, two full-sized spring beds with mattresses,  
pillows, ice box, and grocery chest. All in first-  
class condition. Address Dr. O. A. Aaker, Velva,  
N. D.

#### Physician Wanted in North Dakota

A young man preferred. For Center, N. D., the  
County-seat of Oliver County. No doctor now in  
County. Center has three churches and two banks.  
It is an up-to-date town. As health officer the  
doctor receives \$25 a month. Address Robert Dunn,  
Center, N. D.

#### Minneapolis Office in Fine, New Residential District for Rent

Some business already established is open for  
new doctor from present doctor who is leaving the  
city. Fine rooms, low rent, and splendid location.  
Offices over a drug-store. Address 95, care of this  
office.

#### Practice for Sale

Wanted: A physician to take over my practice  
of eighteen years in a live Minnesota town of 2,500,  
located sixty miles from the Twin Cities. Purchase  
of modern residence optional. A good opportunity.  
Good collections. Am going to specialize. Address  
91, care of this office.

#### Physician Wanted

In a town of 800 population in southeastern part  
of North Dakota. A big territory and a prosperous  
country. Mostly all Germans with a few Hollanders  
around. Doctor must be able to speak German.  
Give reference in first letter. A very good opening  
for the right kind of a man. Address Nick Renner,  
Jr., Strasburg, N. D.

#### Very Desirable Office in Minneapolis for Rent

An exceedingly desirable location, with a pleasant  
office with a dentist, is offered at 625 Plymouth  
Ave., over a drug-store, with a second drug-store  
nearby and under the same management to direct  
attention to both physician and dentist. Rent rea-  
sonable. Address or telephone Dr. A. A. Love  
(Dentist). Tel. Hyland 3036.

#### Minnesota Practice for Sale

Will sell my practice as I am taking up special  
work. The practice is young yet, but without  
doing my own surgery I made over \$5,000 last  
year and collected 94 per cent. Practice ought to  
run \$7,000 or upwards next year on account of a  
new railroad being built into the town. Am anxious  
to close the deal at once. Address 76, care of this  
office.

#### Minnesota Practice for Sale

In good Southern Minnesota town practice and  
complete new office equipment for minor surgery,  
tonsillectomies, and refraction. Ideal office location  
with young dentist who has x-ray. Waiting room  
and office girl shared. Many insurance appoint-  
ments. \$6,000 cash in 1923. Town of 1,000 with good  
future. Equipment invoices \$1,500. Must have some  
cash. Give reference, affiliations, etc. Address 94,  
care of this office.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 11

MINNEAPOLIS, JUNE 1, 1924

Per Copy, 10c  
A Year, \$2.00

## FRACTURES OF BONES OF THE LEG INVOLVING THE ANKLE JOINT\*

BY FREMONT E. CHANDLER, B.Sc., M.D.

WAUPACA, WISCONSIN

In a certain district in Iowa, out of malpractice suits in 124 surgical cases, 75 were for fracture cases. All these suits were based on surgical negligence or the unskilfulness of the attending surgeon. There are two reasons for this common high percentage of malpractice suits in fracture cases:

1. Shortening of the limb, imperfect alignment of the bones, and ankylosis of the joints are more patent to the patient than the results following operations on the soft parts.

2. There may be some grounds for complaints of negligence and unskilfulness of the surgeon in some cases, but many of the untoward results are unavoidable, and the surgeon is unjustly accused.

To lessen these cases of complaint is our duty.

In this paper we are to consider the fractures involving one joint. Fractures of the bones of the leg involving the ankle joint are numerous on account of the exposed position of the bones and the strain put upon them in their almost constant use. These fractures are rarely due to previous pathological conditions, but when such conditions are present, either osteomyelitis, tuberculous involvement, new growth, or unusual fragility of the bones from general disease is usually found. When these pathological conditions are present they call for appropriate surgical and medical treatment which in this brief paper cannot be gone into at length.

Fractures of the lower ends of the tibia and fibula involve not only the bones themselves but the adjoining soft parts as well. Skin, fasciæ, ligaments, nerves, blood vessels, and joint surfaces may be injured and must be considered in the treatment of these fractures. Rupture of the anterior annular ligament with displacement of the extensor muscle tendons, rare as it is, rupture of the internal annular ligament affecting the tendons of the flexor muscles and their accompanying vessels and nerves, or the rupture of the external annular ligament affecting the peroneus muscles, call for operative treatment for their proper repair. Tears of the anterior, posterior, lateral, and external lateral ligaments of the joint, although frequent, usually unite properly without interference. Extravasated blood may need to be evacuated, and bleeding vessels must be ligated. Severed nerves may need operative reunion.

Fractures involving the ankle joint may be of the tibia alone, of the fibula alone, or of both bones. They may be simple or comminuted and are often compound. In fractures of the tibia in early life separation of the epiphysis from the shaft is common. If the epiphysis cannot be retained in its normal position by other means, operative measures must be adopted, but operation must be done under most strict aseptic conditions. In adult life the fractures are transverse, spiral, or longitudinal. They may extend into the joint or be entirely external to it. They may be of the shaft of the bone only or may be of the malleolus only, or of both. When the

\*Presented before the fifteenth annual meeting of the  
Soo Surgical Association held at Minot, North Dakota.



malleolus only is fractured sprain of the ankle joint is often the diagnosis. The force producing these fractures is either direct or indirect and may be of such a degree as to result in a compound or a compound comminuted fracture, or even to cause the entire destruction of the joint demanding amputation of the leg.

Fractures of the lower end of the tibia are infrequent, and as the fibula acts as a splint there is practically no shortening and very little de-

internal and the interosseous ligaments are torn there is external dislocation of the ankle joint with the accompanying deformity, as in the so-called Pott's fracture. These fractures produce pain and swelling, but some weight can usually be borne on the foot. Isolated fractures of the lower end of the fibula may be simple or comminuted but are seldom compound. Figure 1 shows a simple fracture of the fibula about three and one-half inches above the tip of the malleolus,



Fig. 1

Fig. 2

Fig. 1. Fracture of fibula with outward dislocation of foot.

Fig. 2. Skiagram taken to show two years after fracture of left fibula and tibia. See report of case for interpretation.

formity. There will be pain, tenderness, and swelling, and crepitation may be elicited, but cannot always be found. A little weight can usually be borne on the foot.

Isolated fractures of the lower end of the fibula are more frequent than those of the tibia and are usually caused by direct violence. The tibia acts as a splint, therefore there is no shortening of the limb. There is usually some displacement of the fracture ends, and when the

and as the internal and the interosseous ligaments were torn there is the external dislocation of the joint. The fracturing force in this case was direct being produced by the wheel of an automobile.

Fractures of both bones are more frequent and are usually the results of indirect violence, as falls from a height alighting on one's feet. They may be produced occasionally by a direct blow on both bones. The bones are frequently

comminuted, and the fractures are often compound. If the fractures extend into the joint, and if the wounds become infected and there is necrosis of the comminuted fragments, the result is usually a partial if not a complete ankylosis of the joint. The prognosis in such cases should not be too rosy as to complete return of normal motion.

Figures 2, 3, and 4 were taken of fractures occurring in both legs of the same person. They were taken two years subsequent to the injury, and they show the resultant condition of the bones.

was much comminuted, and the lower end of the bone was spirally fractured. The upper fragment of the tibia projected through the skin, and the wound, although carefully cleaned, was infected. The comminuted fragments of the malleolus necrosed and were removed by operation two weeks after the accident. The wound continued to suppurate for two weeks longer. Figure 3, an anteroposterior view, shows the present condition of the right leg. It shows the line of the spiral fracture of the tibia and the almost entire destruction of the internal malleolus, also a fracture of the shaft of the fibula about three inches above the external malleolus. As the infection extended into the joint, there is ankylosis of 75 per cent, but with motion normal gait. Figure 4, a lateral view, shows the



Fig. 3

Fig. 3. Anteroposterior skiagram of right leg two years after fracture of fibula and tibia. See case report.



Fig. 4

Fig. 4. Reveals marked increase in anteroposterior dimension of fractured tibia.

Mr. J. M., a farmer, 37 years of age, fell from a silo alighting in erect position on the cement base of the silo twenty-five feet below. The fibula of the left leg was fractured at the junction of the malleolus with the shaft and the upper fragment projected through the skin. The tibia was fractured spirally one inch above the ankle joint. Figure 2 shows some malposition of the external malleolus and a projecting spine from the tibia overlapping the fibula. There is more than normal external curvature of the lower end of the tibia with slight inversion of the joint, but not of sufficient degree to interfere with the proper motion of the joint. The cutaneous wound was not infected and promptly healed.

The malleolus of the tibia of the right leg

marked increase in anteroposterior dimension of the lower end of the tibia, and the loss of the internal malleolus. This patient has so far recovered as to be able to do all kinds of work except to follow a team in soft ground on the farm.

Diagnosis in cases of fracture of the leg is frequently made difficult by the swelling present if the case is not examined early. Deformity, pain, and crepitation, when it can be elicited, with lessened power for weight-sustaining, will probably give the diagnosis; but the *x*-ray, whenever possible, will make from its exactitude the diagnosis certain and point to the proper line of treatment.



The length of time for recovery may be from three months in simple fractures with little deformity to six months or more in much complicated cases. In a small percentage of cases full recovery never takes place.

The principles in the treatment of these as in all fractures are the following:

1. The correct reduction of the fragments.
2. Their retention in position until union has taken place.
3. Early massage and joint movements to prevent ankylosis.

In all cases accompanied by deformity reduction should be done under general anesthesia unless such is contra-indicated by the patient's condition. The reduction should be done with the aid of a trained assistant, for better reduction can thus be obtained and the surgeon, as well as the patient, protected. The reduction can usually be made by manual manipulation. In cases of fractures of both tibia and fibula near the ankle joint H. Costantini applies extension by gravity. The patient sits or lies on a table with the injured leg pendant. A cuff is fitted to the foot with a sufficient weight attached to the cuff. In a short time the muscular contraction is overcome and the fracture reduced. This method can be used in fractures of both bones, but in one bone fracture it would not be indicated. There must be very careful manipulation in applying the retention splints after such reduction, or the fractured ends will be again displaced. In fracture of the lower end of the fibula with broadening of the ankle joint, the foot should be placed and retained in inversion so that the astragalus is brought in close contact with the internal malleolus and thus avoid the broadening of the joint and the usual tendency of eversion of the foot. In cases where there is much swelling and contusion this reduction cannot be made at once. Temporary immobility may be obtained by the following means:

1. A pillow splint, consisting of a straight board of proper width extending from the knee to some inches below the foot and padded with a pillow or some similar soft material and the whole bound to the inner side of the leg by bandages of gauze or muslin or by adhesive straps. This is easily applied and comfortable for the patient. There should be some elevation of the limb.

2. A fracture box so constructed as to rest on the bed, or one which can be suspended and well padded will be serviceable. The suspension

adds to the comfort of the patient and helps to reduce the swelling.

3. Side splints of either woven wire, of perforated metal, or of wood and extending from the upper part of the calf of the leg and including the foot, well padded and applied to one or both sides of the leg, will give the desired immobility. Metal splints can be easily molded to the limb while the wood splints cannot be so molded. The metal splints must be removed for accurate *x*-ray work.

4. A temporary Stimson's splint may be made of plaster in which there is a side band extending from near the knee down under the foot and up the other side of the leg and another band on the posterior side of the leg extending to the toes. These bands well padded are held in place by adhesive straps about the dressing.

5. A divided plaster cast, the posterior portion of which is molded to the leg and foot, and which incloses about two-thirds of the leg and an anterior narrow strip molded to fit the anterior surface of the leg and extending from near the knee to the toes, held in place by adhesive straps, is easily applied and is very satisfactory. I have had good results in using these divided plaster splints. They can be easily removed and the parts examined; they can be adjusted to the changing size of the leg, *x*-ray work is not interfered with, fenestræ may be cut in them to allow of care of infected wounds, and good immobility is obtained. In simple fractures of the malleoli the wire or the perforated metal splints are easily applied and give satisfactory results.

If these temporary splints retain the fragments in proper position, they may be continued during the whole course of the repair, but if there is a fracture of both bones with shortening and displacement remaining after the swelling has subsided, extension is indicated. This extension may be obtained by the following means:

1. A fracture box so constructed as to allow Buck's extension. A well-padded collar inclosing the ankle, or adhesive straps about the foot and ankle, can be used in applying the extending force to the foot. Great care must be exercised to have the line of extension in exactly the correct line and of sufficient power to hold the fragments in position.

2. A Thomas' splint which extends from the hip to several inches beyond the foot and which has an extension attachment is serviceable and comfortable to the patient. The side bars of the splint should be bent at the knee to avoid knee

pains and possible ankylosis of that joint. This splint may also be suspended.

3. Hackenbruch's fracture clamp consisting of two sets of metal fastening wings with turnbuckles. The wings are embedded in plaster casts, one cast incasing the calf of the leg to near the point of the fractures and the other incasing the foot to the point of fracture. The turnbuckles are then adjusted, and the extension made at the point of fracture. An ingenious pad, which he calls *pelotte*, is to keep the fragments in proper apposition. The applied splint requires close watching and frequent adjustment of the turnbuckles to secure the desired results, for there will be changes in the size of the calf of the leg with loosening of the upper cast, and the lessening of the extension will follow. In open wounds this cast would be objectionable.

Ambulatory splints are seldom required, as the patients can walk about early with the aid of crutches, and they are then well protected by the simpler splints.

I have not covered the whole list of splints used in the treatment of fractures involving the ankle joint, but have mentioned such as are in my opinion the most serviceable as giving the best results.

Open treatment with metal or bone plates or bone nails is seldom required and when they are used in ununited fractures, they must be applied under the strictest aseptic conditions.

The points I wish to especially emphasize are the following:

1. Radiographic examination of all questionable bone lesions.
2. The necessity of strict aseptic conditions in all operations about the joints.
3. The necessity of accurate reduction of the fragments.
4. In all complicated cases the reduction under anesthesia and with the aid of a trained assistant.
5. The appliance of splints of such character as to hold the fragments in accurate apposition until osseous union has taken place.
6. The early massage and joint movements to prevent ankylosis.

#### BIBLIOGRAPHY

- Dutcher, C. M.: *Jour. Iowa State Med. Soc.*, October 1920.  
 Fairchild, D. S.: *Jour. Iowa State Med. Soc.*, October, 1920.  
 Crile, D. W.: *Ill. Med. Jour.*, August, 1920.  
 Ochsner, A. J.: *Clinical Surgery*.  
 Kelly, Robert: *Fractures*.  
 Robinson, E. F.: *Missouri State Med. Ass.*, April 6, 1920.  
 Henderson, M. S.: *Jour. of the A. M. A.*, March 13, 1920.  
 Constantini, H.: *The Surgical Journal*, September-December, 1921.

#### DISCUSSION

DR. LYMAN R. CRITCHFIELD (Kenmare, N. Dak.): Fracture of the leg is one of the conditions that we see quite frequently, and we can say, without any reservation, that every fracture of the leg involves the ankle joint to some extent. It is essential that we make our examination complete, including not only the fibula, the tibia, and the astragalus, but also the rest of the bones of the foot. Frequently we find a fracture of one of the tarsal bones as a result of the force applied when the major fracture occurred.

The two essential factors in a consideration of the deformity are (1) the lateral displacements, and (2) the anteroposterior displacements. The lateral displacement is quite apparent to the naked eye, but occasionally we have an anteroposterior displacement which is not evident to the eye.

In my practice, if I am not positive as to the condition existing, I would rather err on the side of adduction in putting the foot up than on the side of abduction. That is, as Dr. Chandler has indicated, to avoid flatfoot. These cases are very prone to result in flatfoot, and if a surgeon should err at all in putting the foot up he should err towards the side of adduction.

Finally, these cases are sometimes rather trying to the patient, and they deserve a lot of care and perseverance. During the past year I had a case of fracture which gave me considerable trouble, and I did not get as good an anatomical result as I should have gotten. The patient was a workman and I was anxious he should have a good serviceable foot. I spent a lot of time with him and saw that he was baked very frequently and massaged after the baking. I taught him the exercises the orthopedist teaches, having him exercise the muscles of the leg in order to overcome some of the error made in my work. He had a flatfoot, and the exercises did him a great deal of good.

DR. HERBERT B. CROMMETT (Amery, Wis.): One point which the essayist made is very important, and that is to get the foot far enough in to avoid the thick ankle sometimes seen as a result of these fractures. I had one of these cases, when an elderly man was injured quite a distance from town. He refused to take an anesthetic, and as usual reduction was very painful; consequently I did not draw the foot in far enough and I got one of those thick, wide ankles. I have seen a good many of them, and the result is a poor ankle joint.

Dr. Chandler spoke of fractures of the fibula and internal malleolus. Several years ago I presented to the Association a paper on this subject, and in looking over some of the plates I found that where we have a simple fracture of the internal malleolus we practically always get a fracture high up on the fibula, which we will overlook if not careful. While it is true that it does not amount to a great deal, yet if the patient later finds a little prominence on the fibula he will be apt to comment on it.

Another point is the fracture of the anterior or posterior articular surface of inferior extremity of tibia. These fractures, if not properly treated, al-



most invariably cause partial ankylosis and lost motion. During the past year I have had two cases in which the anterior articular surface was broken off. In these cases it is necessary to be careful in getting the foot back and holding it in proper position.

DR. WILLIAM P. THELEN (Wilton, N. Dak.): I never was much in favor of bone plating, but I desire to relate a case of fractured leg that occurred a year ago and required a plate. A large man living on a ranch fractured both bones of the leg about three inches above the ankle. The fracture of the tibia was extremely oblique, and one of the fractures extended down into the joint. The patient was a very active man, and no matter what method we used to hold the fragments we could not keep them in place. We would have it all straight at night, and the next morning he would have turned in bed some way and the fragments would not be in place. Finally we opened the leg on the side and put in a Lane plate, securing quite a good result, put on a circular cast and kept him in bed, and in six weeks he was up and about and went home. Last week I met him out hunting and asked him why he did not have the plate removed. He said it did not hurt him and that he would leave it in a while longer. He had a noticeable limp. I think there are a few cases in which one can use steel plates to advantage.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): In questionable injuries about the internal surface of the ankle I would like to call your attention to fractures of the sustentaculum tali of the os calcis, which is nearly always overlooked. In these cases we cannot take the x-ray picture in the ordinary way. In order to show fracture of the sustentaculum tali we have to take the picture from the rear, through the astragalus, having the patient stand on the film with the leg strongly flexed forwards. Comparison skiagrams should be taken, and they must be separately taken as we cannot get the tube behind both ankles at the same time. Fracture of the sustentaculum tali is a small affair, but a serious one, because, if we do not treat the case right and allow the patient to get on his feet and bear his bodyweight too soon, we are going to have a traumatic flatfoot. It is important that a thorough x-ray examination of the ankle be made immediately after the injury has taken place and an exact diagnosis arrived at. Fracture of the sustentaculum tali should receive the same estimate of disability as when we have a fracture of the os calcis; we must invert the foot the same as when we have a fracture of the internal malleolus—bring the fractured surfaces in apposition and keep them there.

An important matter is the insidious contraction of the tendo Achillis in all these injuries about the ankle. While this point has not been stressed here to-day, I desire strongly to impress the importance of having the foot at right angle to the leg and keeping it there. If we do not do that in the first instance, we shall have trouble, and the patient will walk on his toes and we shall have to stretch the tendo Achillis, which will require about six weeks to accomplish.

With reference to the pre-operative period: In fractures of the femur, tibia and fibula, the so-called Pott's fracture, humerus, radius and ulna, and the so-called Colles' fracture, we should immediately get active after the x-ray films have been interpreted, for we know many of these fractures are much easier to reduce immediately than the next day. If we delay the application of extension and the reduction of the fracture until the tissues become indurated and the blood becomes firmly coagulated between the fragments, then we encounter difficulty in reducing the fragments to apposition, and the early and easy contraction of the muscles and ligaments is difficult to overcome. If we get at the case within, say, three or four hours after fracture has occurred the blood has not clotted, and we all know when we take hold of a fractured limb an hour or so after it has occurred how readily crepitation becomes evident. For that reason we should put on extension at once, and thereby open operation and reduction is frequently avoided.

In applying Parham-Martin bands, say, in a fracture below the great trochanter, we are apt not to obtain the expected result as the bands are likely to slip from the larger towards the smaller circumference of the femur, unless the bands are held in place by some agent—a groove might be made with chisel and mallet. If this is not done we may be disappointed to find, when we take a skiagram some weeks later, that the bands have slipped from the proximal fragment towards the distal fragment.

None of us are willing to allow a bullet or piece of steel to remain in the body. We are anxious to have every foreign body removed, provided it can be done with safety to the patient, therefore, we should likewise always aim to remove Lane's plates, silver wire, Parham bands, etc., after they have served their purpose, as the mind of the patient will be centered on the foreign material, and, if we neglect the opportunity of removing it, he will give another surgeon a chance.

Foreign or non-absorbable material should sparingly be used in the open operative treatment of fractures for holding fragments reduced.

DR. FRITZ A. HABERLIN (Remer, Minn.): I have seen a very effective method of getting return of mobility and making the patient work with the ankle joint. In the war we had these patients use the sewing machine. When they start to put the foot down the sewing machine makes a turn and takes the foot up in a forced way, and this brings about increased mobility. A simple mechanism regulates the amplitude of the to-and-fro movement to any desired degree. The important point is *the early active motion without the deleterious effect of the body weight on a fracture which is not yet solid.*

DR. JOHN M. DODD (Ashland, Wis.): In spite of what our good friend the Chief Surgeon says, there is still a field for better support of some of our fractures. In the early days of the plating method I thought we had to get every fracture in perfect apposition before it would stand inspection by the profession and by the patient and his friends. I am not plating as many cases as formerly, but I am not getting as correct apposition and perfect

reduction as I got by the open method. Then comes the question—How much displacement can we have left in a fracture after we have made our best efforts at reduction, and still expect a good functional result? We must take into consideration that a good functional result is a relative proposition, because if the patient knows he has a displaced bone he is not going to be willing to admit that he has a good functional result or adequate replacement of any part of the bony structure that is fractured. If there is exhibited to him an *x*-ray plate showing a displaced bone, we have then to deal with a mental factor that is quite serious. If we have the co-operation of the patient and his friends they may be willing to put up with a certain amount of displacement as shown by the *x*-ray and believe that the result is as good as could have been obtained.

We have not come to the last word in fractures. The subject occupies a prominent place in most every surgical program, and I think it is well that it does so, for we have not yet solved the problem as to how best to treat fractures. We are on the way, evidence is rapidly accumulating in the experience of all of us, and the time is coming when we perhaps shall be more tolerant of slight or even considerable displacement when we have proper alignment and length, proper relations and all that, even though when the *x*-ray picture is taken it shows the fragments out of position and separated apparently by an open space which we know is not inconsistent with a good strong bone.

Fractures in the neighborhood of the ankle joint are rather more easily reduced than other fractures. This is due to the fact that there is no muscle tissue attached to the fragments of the bone, or at least there is a minimum of muscle tissue attached to the fragments of the bones in this location, and these fragments are more easily replaced for the reason that the soft tissues do not so readily come between the fractured ends as they do in the muscular portions of the limbs, where the muscle tissue very readily works in between the fragments and interferes with complete reduction. In the case of complete fracture that has been displaced it is almost impossible to reduce it and get all the soft tissues out and keep the fragments in correct apposition.

I am not ready to discard the Lane plates or the Parham-Martin metal bands because I have obtained good results from the use of both, and I do not see how we can as yet get along without them. The other day I put up a comminuted fracture, spiral and oblique and broken into many fragments. I reduced it as best I could under fluoroscope, put on a plaster-of-Paris cast, the next day had it *x*-rayed, and the position did not suit me, I put two of the Parham-Martin bands around this oblique fracture and secured a good alignment of the fragments. I anticipate a good result, and in the course of four weeks I shall remove the bands. There is no better method of fixing a long oblique fracture than by the use of the Parham-Martin band. Its application brings about a beautiful reduction of the fracture and holds it in firm position. The bands should be taken off because after a time they interfere with the nutrition of the bone. Any of us who has had occasion to remove the bands know that it is quite difficult to get them off. Take a pair of rib-shears and work the hook under the band and then cut. The bands can then readily be removed with forceps.

DR. RISHMILLER: A fracture at the junction of the middle and the lower third of the tibia can best be treated by applying Freeman's external bone clamp. Lane's steel plate is absolutely contra-indicated in a fracture in this locality, for the blood supply is very poor, and, consequently, the application of a plate is liable to be followed, first, by suppuration and, secondly, by non-union. The suppuration or the non-union is not directly due to the application of the steel plate, but is directly due to the limited blood supply to this part of the osseous system.

DR. CHANDLER (closing): In view of the fact that in nearly all cases of fracture involving the ankle joint open operation for the purpose of plating the bone carries with it the danger of infection with resultant ankylosis, I think the risk to the patient is considerable. We can get a useful ankle without the use of plates or bands, while, if we resort to open operation, we do run some risk of getting an ankylosed joint. Another point is that in dressing these cases I usually make just a little over-extension, for in case we have an ankylosis the individual can walk very much better with an ankle that is a little over-extended.

## DIFFERENTIAL DIAGNOSIS OF LESIONS IN THE RIGHT LOWER QUADRANT OF THE ABDOMEN\*

BY ANGUS E. MACMILLAN, M.D., C.M.

STEVENS POINT, WISCONSIN

The right lower quadrant of the abdomen presents so many widely different lesions, with symptomatology so correlated that a rehearsal of the chief points of identification of each of these

lesions, should not be out of place.

We are all conscious of the large number of fatalities that occur from lesions in this area of the abdomen, chiefly because of uncertain diagnosis and delayed operation. We cannot feel satisfied when we consider the large number of

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



neurotics who are wandering from office to office, many of them carrying from one to four scars upon thin relaxed abdomens and still seeking escape from that distress each operation promised to relieve.

In the acute lesions of this area, frequently the diagnosis must be made at the bedside and the course of treatment decided upon, without waiting for laboratory aid. In many cases an exploratory incision is more justifiable than a delay in order that methods of diagnosis more reliable, but also more time-consuming, may be employed. C. H. Mayo says, "A patient will never be lost because of a necessary exploratory operation, and many lives will be saved." On the other hand, nothing can be more inexcusable than to take the chronic sufferer with a pain in the side, when he comes into the office, place him upon the examining table, punch into his abdomen a few times, pronounce it chronic appendicitis, and order him to the hospital to be made ready for the next morning.

I shall limit this paper as much as possible and deal chiefly with the following conditions: Diseases of the appendix, intestinal obstruction, lesions in the kidney and ureter, lesions in a right undescended testicle, torsion of the omentum, pathology in the right tube and ovary, dilatation of the cecum with retention, carcinoma of the cecum, diseases of neurotic origin including the gastric crisis of tabes, sacro-iliac strain, and hysteria.

I shall mention only acute appendicitis. We all feel that all there is to say on this subject has long ago been said, and yet our mortality continues.

#### CHRONIC APPENDICITIS

Chronic appendicitis with a history of acute attacks permits of a fairly accurate diagnosis, but those cases of chronic appendicitis, so called, without previous acute attacks, constitute the diagnosis most common to this quadrant, and the operation based on this diagnosis gives most unsatisfactory results. Pain and tenderness over McBurney's point are not enough for a diagnosis. The diagnosis of chronic appendicitis must be arrived at chiefly by exclusion, and in this exclusion tabes, lead poisoning, sacro-iliac strain and beginning inguinal hernia must be kept in mind. Above all, we must be on the alert for a distinct neurosis, often centered in this location. This point was ably presented by F. Gregory Connell in an article entitled "Chronic Appendicitis, So Called."

#### INTESTINAL OBSTRUCTION

No condition in the abdomen calls for more sound judgment or more prompt action than acute intestinal obstruction. The death rate from this is alarmingly high and is not decreasing. Deaver records 276 cases with a mortality of 42 per cent, and, what seems inconceivable, in obstruction due to inguinal hernia the mortality was 26 per cent. Those due to post-operative adhesions gave a mortality of 49 per cent. He also shows the average time between onset of symptoms and the time of operation. In those that recovered it was two and one half days and in those that died over four days.

This is a condition we must learn to diagnose if we are going to reduce an appalling death rate, and I feel certain that more delays and mistaken diagnosis are due to an early dose of morphine than to all other causes combined.

In this condition the stethoscope gives valuable aid. If the physician will sit for some time with his stethoscope upon the patient's abdomen he will note that the pains—and these occur at intervals—coincide with a strong wave of peristalsis. This wave seems to be interrupted or blocked in its course. Once this point is determined together with that inability to secure a real bowel movement we have gone far toward a definite diagnosis.

Coprostasis is perhaps one of the most reliable and yet one of the most misleading of the symptoms of this lesion. Small quantities of feces and even small amounts of gas will be passed from time to time. These are dangerous symptoms, as they lure the physician along in the hope that the obstruction is not of the mechanical type and they prolong a delay perhaps already too great.

These findings, together with nausea or vomiting and a local or general tympany, call for immediate action. A careful rectal examination often gives valuable information.

#### DISEASE OF KIDNEY AND URETER

Stone in the kidney or stone or kinks in the ureter present a different phase. Here the intense pain calls for an immediate diagnosis and relief. The symptoms are often confused with those of appendicitis and intestinal obstruction. In ureteral calculus the pain comes on suddenly and is often terrific from the onset. This is not true of appendicitis. Again the pain usually radiates into the testicle of the male and into the urinary meatus of the female. If the urine contains no pus there is rarely any rise of temper-

ature during the first thirty-six hours. Frequent and painful urination is a helpful symptom when present, but is rarely present.

One symptom, slowly grasped by the profession, is the reflex ileus so characteristic of the passage of a ureteral calculus. So often one hears it said, "Yes, he may have a stone in the ureter, but why cannot we get his bowels to move?" I am sure that all of us who do abdominal surgery have had these cases referred as cases of intestinal obstruction. Infection of the kidney may closely resemble appendicitis. The finding of pus in the urine usually sets us right. The diagnosis of appendicitis should never be made in a pregnant woman without a careful examination of the urine for pus and often a catheterization of the right ureter to exclude ureteral obstruction.

The combined use of the microscope, the cystoscope, and the *x*-ray rarely leaves us in doubt as to the diagnosis, and usually the use of any one will suffice in acute cases. The finding of microscopic blood in the urine along with the previously mentioned symptoms makes the diagnosis fairly certain. The passing of a ureteral catheter confirms this diagnosis. Let me state, knowing that I am leaving myself open to criticism, that more general surgeons should become familiar with the use of the cystoscope. No one disputes his right to apply high forceps in obstetrics, which is a much more difficult procedure than the ordinary use of the cystoscope in diagnostic work. It is not difficult to find clinics in urology with efficient teachers in the use of this instrument. I use my cystoscope in farm houses under just as strict asepsis as were employed in the hospital where I received my training in this work. The olive-tip catheter, the wax-tip catheter, and the *x*-ray are the final means of diagnosis in difficult cases.

#### UNDESCENDED TESTICLE

A young man twenty-two years of age was referred to me for an immediate operation for appendicitis. He had a temperature of 101°, and had vomited and was very tender somewhat below McBurney's point. While preparing the patient I noticed that he had no testicle on the right side. Examination showed a urethral discharge containing gonococci. I then decided the case was a gonorrheal epididymitis in an undescended testicle. The course of the disease confirmed the diagnosis.

#### TORTION OF THE OMENTUM

A surgeon whom I was visiting admitted to the hospital the following case:

A man, aged 28, suffered from severe pain in the right lower quadrant of the abdomen. He had an undescended testicle and hernia on the right side. A hard bluish mass the size of a fist was pressing up against the inner inguinal ring. The patient claimed that this mass appeared and the pain began when he slipped while in the act of lifting a heavy box. The mass was diagnosed as a probable sarcoma in an undescended testicle.

Operation revealed a torsion of the omentum. The whole lower portion of the omentum was twisted into a gangrenous ball. Two complete turns were necessary to untwist it. It was resected.

#### DISEASE OF THE TUBE AND OVARY

Salpingitis, ectopic pregnancy, and tumors of the ovary must be diagnosed chiefly by a painstaking history and a careful vaginal examination. The temperature shoots up much more quickly in an infected tube than in an appendix.

#### DILATATION OF THE CECUM WITH RETENTION

Friedenwald claims that this condition is fairly common and that even with a normal daily movement of the bowels a large amount of a bismuth meal will remain in the cecum from forty-eight to one hundred-twenty hours. This dilatation causes pain and tenderness over the cecum, which is not relieved by the removal of the appendix.

#### CARCINOMA OF CECUM

The diagnosis of carcinoma of the cecum according to Friedenwald must be made after repeated fluoroscopic examinations following a barium enema. A constant filling defect in the cecum found in all examinations at the same point, justifies a diagnosis of malignancy. If his findings prove to be reliable they constitute the only reliable method of diagnosis we possess.

#### DISEASE OF NERVE ORIGIN

The gastric crisis of tabes must ever be kept in mind as these pains may precede even the changes in the patellar and pupillary reflexes. A lumbar puncture with examination of spinal fluid is often necessary. The pain from sacro-iliac strain is often referred to the abdomen, but corresponding points of tenderness may be found along the spine in the right sacro-iliac area.

And, lastly, we have the neurasthenic, usually a female who, if she has not already had a uterine suspension of some type and her appendix removed, has at least been treated for a long time with tampons. She needs a thorough examination and, if found normal, a careful education. Few of us take time to give her either. "The neurasthenic does not suffer; it's her friends and relatives who suffer."



## CONCLUSIONS

1. Acute lesions in this quadrant require a prompt and definite diagnosis and, we should not hesitate to do an exploratory operation if necessary.

2. In chronic diseases in this area we must not operate upon a pain, but must use every means, not simply those at our disposal, but those within the reach of the patient, to find definite pathology.

3. In both the acute and chronic diseases an accurate painstaking history is most essential.

4. A rectal examination in children and in the male, and a vaginal examination in the female must never be overlooked.

5. A working knowledge of the cystoscope is of great value to the general surgeon in differential diagnosis of right abdominal lesions.

6. Lastly a hypodermic injection of morphine should not be given in acute lesions of the abdomen until we have made a definite diagnosis.

## DISCUSSION

DR. RICHARD T. GLYER (Brooklyn, Minn.): The abdomen is a part of the body which is always fruitful for study, and one wherein most of us have made many mistakes. The diagnosis of acute appendicitis should not be difficult except where the appendix is located in the region of the kidney, retrocecaly, or where there is visceroptosis and the appendix lies in the pelvis, as in a recent case of ours. This was a case of ruptured appendix with no pain, tenderness, or rigidity over McBurney's point, but from the history of the bladder, the blood findings, and pain and tenderness in the midcentral line, we made a diagnosis of acute appendicitis.

Chronic appendicitis is a subject on which we are becoming more and more conservative, as we find that many of our mistakes and disappointments are in the condition we call "chronic appendicitis."

Dr. MacMillan brought out some points on intestinal obstruction that I wish to expand. The death rate of this disease is very high, and in spite of the fact that many papers are being read on this subject and that our attention is brought to it continually, the death rate has not decreased. I think this is due to the fact that there is lack of certain findings, namely: There is no increase in the rate of the pulse, no rise in the temperature, and the blood findings are normal. In spite of the severe and sudden pain that is encountered, in spite of the vomitus, which is not forced and is free and easy for the patient to throw off, and in spite of the fact that in practically every case peristalsis is evident through the abdominal wall, we continue to make these mistakes. I contend that, with the finding of paroxysmal pain, vomiting, and peristalsis, and especially with the finding of scars and getting the history of previous operations, or even with the history of a salpingitis or a chronic appendicitis or a tuberculous peritonitis, we are justified in going in and doing an exploratory operation, because

many of these patients will die if we do not take this radical course. In acute appendicitis, even with a rupture, the patient has a chance of getting well. In one case a patient told me that she had had a rupture of the appendix years ago, that after weeks and weeks of suffering it broke through the abdominal wall, and that finally she recovered.

I might mention one other point, namely, visceral thrombosis. I have had several of these cases in my practice and have seen several others, and not one of them was diagnosed before operation. I do not know whether it is even possible to make a definite diagnosis of visceral thrombosis.

DR. THEODOR BRATRUD (Warren, Minn.): There is one type of intestinal obstruction which I have never seen described, and that is an incomplete intestinal obstruction. I have seen four cases. All four patients had been operated on for some abdominal condition previously, with the result that the omentum became adherent to the anterior abdominal wall at two points and a loop of bowel had slipped through between these points. All four patients gave a history of repeated attacks of sharp pains in the abdomen with more or less nausea and vomiting after they had made an apparent recovery from their primary operation. One of them had been operated on ten years before for appendicitis, and drainage had been used. The patient gave a history of severe attacks of upper abdominal pain and tenderness, and the doctor in charge made a diagnosis of cholecystitis, operated, and drained the gall-bladder, but found nothing in the gall-bladder. The patient's symptoms grew steadily worse, and in spite of the fact that the patient at times passed small amounts of flatus and stools, the abdomen became very much distended and his general condition became very bad. On opening the abdomen about seven days after cholecystostomy had been performed, we found two loops of ileum which had slipped through between the two adherent points of the omentum and were obstructed, but not completely. The incomplete obstruction permitted flatus and small amounts of bowel movement to pass, but there was just enough obstruction to stop the return flow in the mesenteric veins, with a resulting mesenteric venous thrombosis. The patient died twenty-four hours after the operation for the relief of the obstruction.

In every case with recurring attacks of pain after an abdominal operation, we should bear in mind the possibility or probability of this type of obstruction. It is not the type of obstruction that we get with the volvulus or complete obstruction; and for this reason we are fooled, and we delay active interference until it is too late. It is not the arterial obstruction to the intestine that causes gangrene as much as the venous. It takes very little pressure upon the mesentery to obstruct the return flow in the mesenteric veins, and we have a dilated bowel and a black bowel, which undergoes gangrene resulting from the resulting thrombosis, and, while this whole process is going on, small amounts of flatus and stool are passed, just enough to fool any of us so that we feel that we have not an obstruction when we really have a very serious type of obstruction.

We had one other case of a similar nature. This patient had recurring attacks of pain over the whole abdomen with nausea. The attacks passed off in the course of a few hours until he had one attack which lasted six days. During all these days he passed a small amount of flatus and a small amount of stool. His condition became suddenly serious. He had diacetic acid in the urine, and an acetone breath. Through a pararectal right-sided incision, under local anesthesia, we found two loops of bowels, one about six inches long and one about two feet long, had slipped through the opening between the two adherent points of the mesentery. There was not complete obstruction of the bowel, but there was thrombosis of the mesentery and a black bowel. The patient died. We found a similar condition in two other cases which were operated on, one on the second day and the other on the third day. Both cases recovered.

The point I wish to make is, that with a patient taken with pains in the abdomen plus nausea and possibly vomiting, even though he passes flatus and some stool, we must bear in mind the probability of an incomplete obstruction in spite of the fact that flatus and stools are passed.

DR. BURTON C. FORD (Minneapolis, Minn.): I have two interesting cases to report on the question of pain in the right lower quadrant. One, a boy, aged 10, who had complained of pain mostly referable to the right lower quadrant. For some time he had symptoms referable to the appendix and also to the kidney. We were at a loss for a diagnosis. The possibility of pyelonephritis was taken into consideration, also appendicitis. He had a slight leucocytosis and also tenderness. At operation a retroperitoneal sarcoma of the pre-aortic glands was found.

The second case was that of a young woman, aged 26. She had come in with pain in the right lower quadrant and complained of attacks of pain over a period of years, but not an acute attack that would simulate an appendicitis. She was well nourished and had lost no weight to speak of. Her hemoglobin was 85, and the blood picture practically normal. The question was whether the condition might be cystic ovary. Dr. Head saw her twice in consultation, and the question of carcinoma was considered, but that was ruled out on her general condition and the blood findings. Vaginal examination was made, and one could feel a mass which was indefinite. A pre-operative diagnosis of tumor was made, also a diagnosis of pneumoperitoneum. Operation revealed a large retroperitoneal sarcoma on the right side.

DR. JOHN M. DODD (Ashland, Wis.): The paper presented brings to mind many cases we all have had which fit very nicely into the program, yet we hesitate to speak about them. I have one case which is called to mind by the paper read and the discussion that followed. While riding on a gasoline handcar a man was struck by a switch engine and knocked off, sustaining quite severe injuries. He was taken to the hospital and placed under treatment and also observation as to what might arise. Within two days he began to develop symp-

toms of intestinal obstruction. On the right side of the abdomen he had a scar that was depressed in one part and bulging in the other. The man was distended and had the feeling that we all recognize as one of the features which develop in intestinal obstruction. I advised operation. We opened the abdomen and found a large distended ileum, and, at the point of the scar and some distance above the valve, there was an adhesion of the ileum to the posterior wall of the abdomen. The mesentery seemed to have been shortened by an old attack of peritonitis, which he had had twelve years before. Evidently he had an attack of appendicitis or some other condition that necessitated operation, and this had been followed by a prolonged period of inflammation. A loop of the bowel had slipped under a band of adhesion, and I suspected that the loop must have slipped under there at the time of the accident—all indications seemed to point to that conclusion. In separating the bowel from the scar in the right side the bowel was opened. Its attachment had grown so intimately that evidently there had been an old leakage there with a fistula of considerable size. That had healed over, but in trying to separate the bowel from the scar the bowel was opened. We took care of the case as the indications seemed to require, but in a few days the patient died.

Another report of a case is in a way a confession. The older we get the more ready we are to admit our mistakes, oversights, etc. I shall have to leave you to form your own conclusion as to how far I was amiss in the history, the findings, and the treatment. A woman was brought in with quite definite symptoms of appendicitis; in fact the symptoms seemed to be sufficiently positive to warrant the opening of the abdomen and the removal of the appendix. The patient was brought fifty miles by the attending physician, and, assuming that he had gone quite carefully into the history of the case, I took too much for granted. I operated and removed an inflamed appendix, after which everything went along very well for about three days, when she suddenly developed a skin eruption and broke out with smallpox. She has entirely recovered.

Dr. MacMillan told us many things in a way that we shall remember. It calls to memory many things which of course we know or at least ought to know; and the strongest point in his whole paper is that we should be more careful in taking our histories.

DR. VICTOR A. MASON (Marshfield, Wis.): I have listened to the paper and discussion, and the only conclusion which any of us can come to is that, while it sounds real nice to hear how simple it is to diagnose some of these conditions, every one of us, if honest, will have to admit that in a considerable percentage of the cases we are wrong. I do not believe it is possible for any of us to be correct in diagnosis to the extent some surgeons make claim they are. I have seen cases in which I do not believe anybody would have hesitated to make a diagnosis of acute appendicitis. I have operated in such cases and found a gangrenous Meckel's diverticulum. I have seen cases in which apparently



all the trouble was left-sided, and on operation I have found that the appendix extended beyond the middle line, and perforation and abscess formation or the inflammatory condition was entirely on the left side.

Some years ago I saw a case in which there was plainly an abdominal tumor on the right side. It was perfectly movable, or, at least, it was so far as I could determine, and I made a positive diagnosis of ovarian cyst as large as an orange. On opening the abdomen I found that it was a tumor low down in the mesentery. I removed it and after the abdominal wound was closed I cut into this mass and found it was a sponge or piece of gauze that had been left in the abdomen and had become encysted. It simulated a perfectly movable tumor.

I have heard many operators tell what they were going to find. Last year I heard an eminent surgeon state what he was going to find, and in five or six cases he was wrong. We should first use every method of diagnosis available.

The general practitioner can not become proficient in the use of the cystoscope. I have operated on many cases of chronic appendicitis, and later the patient had the same pain. Since I have been associated with a urologist he has found ureteral strictures. I think he goes too far in this, but still he has cured many patients who have had the appendix removed. There is no doubt that pyelitis has caused many mistakes. There are cases of appendicitis which have some pus in the urine, but the patient has appendicitis too. In some cases of acute abdomen in children the diagnosis of appendicitis has been made when the real condition was acute tuberculous peritonitis, which was not diagnosed.

The only way out of these difficulties is to use every method available, such as the cystoscope and x-ray, besides securing a good history, and then see how many times we are right. There is no one that can always be right.

DR. FRITZ A. HABERLIN (Remer, Minn.): I was called to see a boy twelve years of age after he had been sick three weeks, with a temperature of 103° in the evening and normal in the morning. The parents gave me a history which indicated acute appendicitis,—vomiting, sharp pain in the abdomen, the boy doubled up, the right leg drawn up, rigidity of the abdomen, etc. I concluded that the condition must be an abscess of the psoas, probably caused by a retrocecal perforation. I could not feel a mass in the abdomen, but in the flank I felt a fullness. The parents permitted operation. I operated and found the appendix normal, and then turned the patient around and opened toward the kidney and found an abscess the size of a child's head, without colon odor. Afterwards I learned that about six weeks before the boy was taken sick he sustained what at the time appeared to be a minor traumatism by falling with his flank against a stump, and, probably due to some focal infection, a perinephritic abscess developed, the trauma creating a locus minoris resistentiæ.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.): The only way we can reduce the mortality rate when having symptoms of an acute abdominal ca-

lamity it to do an exploratory laparotomy immediately. If we wait we are too late.

DR. ALBERT E. BOOTH (Minneapolis, Minn.): In the last five weeks I have had more cases of intestinal obstruction than in years,—five in five weeks.

One of these cases is of special interest. It puzzled me, and I failed to make a diagnosis, which I might have done. A man who gave a history of having had a right inguinal hernia in previous years, but who had not complained for several years, was suddenly seized with pain while at work, went home, the condition was studied for several days by his physician, and finally a diagnosis of acute intestinal obstruction was made. On opening the abdomen I found that the right inguinal hernia had persisted, and with a loop of bowel about eight inches long had made its way down extraperitoneally to the right of the bladder, clear down into the pelvis. Relief of this condition cured the obstruction and hernia.

DR. GEORGE F. THOMPSON (Chicago, Ill.): When we operate for acute appendicitis and find something else we are sorry we did not make a proper diagnosis. A physician at Cook County Hospital asked me to see a patient. I examined her and found that she was tender and rigid on the right side. About 4 o'clock one morning they telephoned me that her temperature had gone up to 106°. I went to the hospital immediately and in the course of examination I asked the patient to move her legs, and I found that she could not move either leg. I asked the doctor why he did not tell me this and he said he thought that she had so much pain she could not move the legs.

The condition was infantile paralysis, and the patient died.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): Joint lesions are more apt to be overlooked in women than in men, and in women we are more apt to look for intrapelvic pathology. As a corollary for a mistaken diagnosis with the same syndrome after as before laparotomy, I desire to cite a case bearing on the paper and discussion:

November 15, 1917: Mrs. K., aged 28; married eight years; has one child five years of age, which was delivered with instruments; has had no miscarriages; weighed 105 pounds when married, weighs 145 pounds to-day. She stated that she had her appendix removed and uterus placed in position on June 28, 1917, by a surgeon in LaCrosse, Wisconsin; she remained in the hospital two weeks and three days. She stated that she had this operation done on account of pain through the left hip and thigh. She stated that after leaving the hospital she was free from pain for several weeks.

She complains to-day that she has the same pain through her left hip that she had before the operation, namely, pain over the sacrum and the left hip. Bowels are regular and have been so since she weaned her baby. Her ankles do not swell. Has headache over both eyes. Headache and backache seem to depend on each other as to severity. Has gas on stomach, more after eating. After a complete physical examination, a diagnosis was made of a strain of the ligaments of left sacro-iliac joint.

She was measured up for a Goldthwaite belt and was instructed to continually wear the belt, except when in the recumbent position.

Her husband reported several days later that his wife could not be without the belt, that she had to remove the belt in the evening while in bed and had to re-apply the belt in the morning while in bed before arising, in order to avoid pain and soreness through the left hip. By wearing the belt she was comfortable in attending to her household duties.

This was purely a case of sacro-iliac strain, and the operation for appendicitis was an error.

DR. MACMILLAN (closing): From all the discussion that has taken place it would seem that this subject still is popular.

When I mentioned the cystoscope I realized that if a urologist was present I would be criticized; but if in your practice the services of a urologist is available, do not use the cystoscope. Many of us

have to work out our own cystoscopy, but the general practitioner finds that in 49 cases out of 50 he has a more difficult procedure on his hands than in catheterizing. We do not need a \$1,000 equipment for our ordinary work. I do not mean that one is to start this without any training and try to work it up himself. This would be too expensive to the patient. The general practitioner can learn to do the ordinary work, and there are times when we cannot call in a urologist. Frequently it is useful to be able to inspect the inside of the bladder.

I agree with Dr. Mason that we often go wrong, but because we do go wrong is no reason why we should not try to diagnose the next case right. When we have exhausted our resources then it is up to us to send the patient to a specialist, turn the case over, and ask him to make a diagnosis and get the patient back to us, or, if we deem it best, leave the case in his hands.

## THE GENERAL PATHOLOGY OF SYPHILIS\*

By H. E. MICHELSON, M.D.

Assistant Professor of Dermatology, University of Minnesota

MINNEAPOLIS, MINNESOTA

At the site of infection with the spirocheta pallida there is developed, in approximately twenty days, a primary sore or chancre. In this respect syphilis differs from the other infective granulomata (tuberculosis and leprosy).

The infection may be acquired venereally or accidentally, and the many possibilities of source make almost any part of the body vulnerable. I have seen a chancre on the lower eyelid acquired when a daughter, with papules on her tongue, removed a cinder from her mother's eye. Professor Oppenheim told me of a chancre he had seen on the great toe of a small boy who had been bitten by his infected brother in a friendly scuffle. Riecke cites a chancre which he diagnosed on the sole of a washer-woman's foot, who, barefooted, washed clothes at a brothel.

In order for infection to take place it is considered essential that the covering epithelium be broken. Some authorities state that the spirocheta cannot gain entrance through an intact epithelium. The spirochetes do not linger long in the upper layers at the site of entrance, but soon penetrate to the vascular connective tissue layers where they develop and call forth a typical granuloma composed of epithelioid and plasma cells and lymphocytes. In a few rare instances syphilis can develop without the formation of a chancre. The so-called syphilis d'emblée.

The period of time from infection until the first appearance of the chancre is known as the first incubation period, and the changes connected with the chancre and the regional lymph vessels and glands constitute what is known as primary syphilis.

After the third week of infection the chancre grows rapidly. From the sides and below there is little opposition to its development; but in its growth upward it presses against the tightly stretched epithelium, causing a pressure necrosis which results in exfoliation. The sore appears then to be an oozing erosion lying in the same plane as its surrounding tissues, or it may be slightly elevated. The sore is usually of a beef red color, sharply outlined and distinctly firm to palpation. The spirochetes do not remain confined to the granuloma which composes the chancre. They wander into the surrounding tissues and quickly penetrate the lymph channels, blood vessels, and nerves. The old view that the virus of syphilis went into the blood stream at the end of the seventh week of infection has been quite conclusively disproven. The spirochetes very early steal into the lymph stream, and soon they are swept into the regional lymph nodes. Through the reaction of the glandular parenchyma there is set up a syphilitic lymph adenitis or scleroadenitis, which gives a characteristic clinical picture. The glandular elements are much increased; in fact the inflam-

\*Presented before the Aberdeen District Medical Society, Aberdeen, S. D., January, 1923.



mation often continues until the gland capsule is stretched to the maximum, but the inflammation never spreads to the surrounding tissues, therefore the involved gland when palpated is freely movable, feels hard, and is not painful, which is quite different from the glands in a more acute infection, like, for instance, the bubo which accompanies a chancroidal infection. Here the inflammation is so rapid that the tissues are put under tension before they can accommodate themselves to the strain, hence they are painful. The inflammation spreads to the surrounding tissues, firmly fixing the mass to the overlying skin, and the streptobacillus is a pus-former, therefore suppuration is common.

We designate as the second incubation period that time which elapses between the appearance of the chancre and the manifest constitutional symptoms. This space of time is from four to seven weeks. During the first incubation period the increase in the number of spirochetes is relatively small, but during the second incubation period their increase and dissemination is rapid. They may get directly into the blood stream by penetrating the small veins of the primary plasmon, or they may be carried through the lymph stream via the thoracic duct into the large blood vessels. With the constitutional manifestations begins the so-called secondary period.

*Secondary syphilis.*—Any infective disease in which the causative agent is widely and generally distributed is quite certain to call forth a variety of symptoms; their severity will depend upon the extent of the infection. It is likewise so with syphilis. But in no disease is the chronology so constant. At the end of the eighth week the infected individual may note a slight evening rise of temperature, general physical and psychic depression, fleeting bone and joint pains. Pallor is often pronounced, and the loss of weight may be alarming. All of these symptoms conclusively show us that the infection is no longer local.

The spirochetes do not remain in the blood stream long. Hoffmann, in examining a large number of cases of syphilis up to six months duration, proved this. In animal inoculations with the blood from these cases he got very few positive takes.

The spirochetes seek tissues which are adequate for their colonization, and they are able to penetrate into the finest structures. The reaction that their presence evokes depends upon the well-known factor of the virulence of the infector and the susceptibility of the host.

Virchow said that the importance of syphilis does not depend upon its morphological products, but upon its evolution, its retrogressions, its clinical history, and its life.

Morphologically we find two general types of tissue reactions: first, a diffuse variable hyperemia of a catarrhal nature or circumscribed, acute, or subacute inflammatory foci, of uncharacteristic histological structure; secondly, true, more or less typical syphilitic granulomas made up of epithelioid plasma, and lymphoid cells with an occasional giant cell.

The skin plays an important part in the early manifestations of lues; both as a minor in which the presence of the disease is displayed and as an organ which produces antibodies. An old axiom states that the more severe the cutaneous manifestation of syphilis the less often the inner organs are involved. This may or may not be correct. It is merely an old clinical observation, not checked serologically.

In the macules of the roseola the histology shows only a slight infiltrate of the corium immediately beneath the epithelium. The amount of cellular infiltrate varies considerably, and is made up largely of lymph cells and plasma cells. There are also a few red blood cells. In the papular syphilides the infiltrate is much more dense. When these papules occur on the mucous membranes or in moist areas, as in the genital region, they become early eroded. These eroded papules ooze a serum which is very rich in spirochetes, and there is no doubt that eroded secondary papules play the greatest part in the transmission of lues from individual to individual.

Secondary syphilis calls forth a reaction in almost all of the superficial lymphatics. The nodes are hard, indolent tumors of variable size, but they are never as large as the glands which are regional to the initial lesion. Certain glands are of more importance diagnostically than others because of the rarity of their involvement in any but the syphilitic process. This is especially true of the antecubital glands. In the pre-Wassermann days a diagnosis of latent lues was often made by the presence of palpable epitrochlear glands. The general adenitis will persist for years in untreated syphilis and long after the patient has forgotten a small painless genital sore or a fleeting rash. The tell-tale glands will remain to act as evidence in favor of luetic infection. Even under treatment the glands will remain palpable for a long while. The length of time will depend upon the age of the infection at the time treatment is instituted and the type

and manner of treatment. The older the luetic process the more sclerotic is the reaction in the lymphatic parenchyma.

Occasionally the bones and joints are involved in secondary lues, but rarely are pathognomonic signs present. Fleeting bone and joint pains without apparent pathological changes are common, especially in the prodromal stages of the eruption. The polyarticular pains are often mistaken for rheumatism. Periostitis of the tibia or skull bones is not rare, but is usually a later manifestation.

The skin, the mucous membranes, the lymphatics, the bones, and the joints are the tissues of predilection. They usually give forth the earlier subjective and objective symptoms of secondary syphilis; but by no means are their symptoms constant.

Icterus as the result of the liver cells being invaded occasionally is noted. Albuminuria is likewise occasionally noted.

The meninges frequently react decidedly at the time of generalization. This fact probably accounts for at least certain of the frequent headaches which are often complained of at this period.

An important fact which has been learned from experimental syphilis in apes and rabbits is that certain organs and tissues may harbor the spirochetes saphrophitically—that is, they may be present without setting up any reaction. This may be an explanation of relapses. Saphrophytic spirochetes may suddenly acquire a virulence, multiply, be disseminated and call forth a reaction which causes manifest symptoms.

Latency in lues is a period in the life of an infected individual when his lues cannot be discovered by any known way, but the virus is still present and when the proper circumstances prevail it will again call forth various reactions which make up the manifold recidives.

Recidive syphilis is the relighting of the infection, so to speak; it is a new manifestation of the disease which has previously shown signs of generalization. The later this relapse the more localized it usually is. The skin, mucous membranes, various organs or nerves may be the seats of this relapsing phenomenon. The

first recidive usually occurs in from three to six months after generalization, and the periods of quiescence can often be spaced into three to six months intervals.

The older the process the more severe is the manifestation in a local sense, so that where early syphilitic manifestations usually disappear without a trace the later recidives cause a loss of tissue substance, and repair takes place by scar formation.

The so-called tertiary period comes on after four or five years and is looked upon as a state of allergy where a maximum tissue reaction is brought about by a minimum stimulus because of sensitization of the tissues. In secondary syphilis the product of the disease consists of a localized perivascular infiltrate rich in cells, but it does not interfere with the structure of the tissue involved to any great extent, though in tertiary syphilis the disease product is quite different. It consists of a granulation tumor, a so-called gumma, which in its growth interferes with and often destroys the parenchyma of the organ involved, and healing takes place only with scar formation. Any organ of the body may be involved in tertiary syphilis, but predisposition plays an important part. In secondary syphilis the manifestation may be in the skin at one recidive and elsewhere at the next, but in tertiary syphilis the same system is usually involved. When the first gumma is cutaneous, if there is a second one it is quite apt to be cutaneous also.

Late syphilis of the inner organs depends upon a panvasculitis with a dense luetic infiltrate, forming granulation tumors with destruction of parenchyma, obliteration of vessels, and scar formation.

This short résumé of the pathology of the syphilitic process is given with the hope that syphilis will be looked upon as a more or less continuous constitutional process and not be in any way viewed as a local disease. Nervous system involvement is also part of the general process, and whether or not symptoms, either clinical or serological, persist depends upon the ability of certain tissues in the infected individual to resist or overcome the activities of spirochetal invasion.

## PRO BONO PUBLICO

BY AN OLD COUNTRY DOCTOR

In olden times when medical men gathered together to discuss their grievances, with one foot on the rail, it sometimes happened that one of

the gentlemen would become pot valiant and boast of his pugilistic attainments. He would then demonstrate to his admiring companions,



the technique of the assault he intended to commit on his Homeopathic competitor when opportunity presented. These encounters were not unknown, but as the outcome was usually quite fortuitous, they did not become matters of record. Besides, the spectacle of a gentleman boxing for the honor of a virile profession was ludicrous in addition to being heroic. But times have changed; the old manners have gone. There is no longer any rail on which to rest the foot. Perhaps this is the reason why questions of ethics are no longer referred to the Goddess *Fistiana*, but are examined by discussion in the orderly medical meeting of to-day.

In every medical society the theme "Our Relations to the Public" is a favorite one, and many beautiful essays are written thereon. But running through them all is a minor strain of sadness and bewilderment to think that the public do not appreciate us and that they patronize Chiropractors and Osteopaths in spite of our repeated admonitions as to the chances they are taking.

On every hand we hear the cry, "Educate the Public." Serious-minded gentlemen spill the ink, shouting through the magazines, "Educate the Public." Equally serious-minded gentlemen arise in medical meetings and sound the slogan "Educate the Public." It is beginning to sound like a call for assistance. Ships at sea (before the radio) displayed certain signals with pathetic conspicuousness, for instance, the signal, "Ship not under control," was displayed from the mast-head.

Why do we want the public educated? So that the army of Osteopaths camping at our gates, may be dispersed or go away. For some time past we have been putting the Osteopaths through a course of compulsory education. As a result of this they have moved up to the gates and are camping there, waiting for the gates to open, of course.

Further on are the Chiropractors, but their education has just begun. From now on, beginning last year, every student of Chiropractic must have a high-school diploma. The Chiropractors set up an awful howl, but they are facing the dilemma and we shall hear from them later.

This legislation is a projection of our own over-wrought imagination. If we could learn to hear and see things as they are, no such laws would ever be passed. If left to themselves, if left alone the Chiropractors would have multiplied until they had blocked every avenue on which they depended for subsistence. This

would have put an end to Chiropractic. To multiply seems to be the chief function of most of the cults. It also contains the germ of their destruction. There was no danger to us in Chiropractic, if we had let them alone. But with every Chiropractor a high-school graduate our troubles will become very real indeed. If we follow up what we have started, we shall eventually have to absorb the Chiropractors. Their present self-seeking leaders will be deposed, and the glow of aspiration will become visible in Chiropractic itself.

We are now ready to educate the public, but no one has told us how we may gain the attention of this indifferent public, so that its education may begin and we may find much more difficulty in educating the public than we have found in educating the Osteopaths.

Sociology divides the population into a number of minor groups clustered around a great central mass, comprising about ninety or ninety-five per cent of the whole. This great mass is the "Public" whom we propose to educate; but sociologists tell us that this central mass has some characteristics which render its education a matter of unsurmountable difficulty. Its most salient feature is its inertia; secondly, its lack of initiative; and thirdly, its low intellectual level. These qualities, at first glance, seem to be bad, but on closer inspection we find that it is a good thing for everybody that things are so. The inertia keeps the masses from being moved by every force that comes along. The lack of initiative makes the masses depend on leaders, who are liable to be of superior mental equipment to the average of the mass, and the low intellectual level, while preventing its education as we propose, at the same time allows much dangerous revolutionary propaganda to pass over its head for lack of intellectual grasp. In fact these three characteristics by themselves contribute to the stability and equilibrium on which civilization rests. In dealing with this public it is well to remember that *we* have got to get along with the public. The public does not have to get along with *us*. When this great mass moves it will be *us* who must get out of the way; *it* will not get out of the way for *us*. If the public wants to exercise its credulity by patronizing medical sects and cults, it will do so in spite of our displeasure. It will resent any effort on our part to impose our will on it or any attempt on our part to restrict its liberty of action or choice. This public does not care for us or our troubles. However, we have certain real

duties and responsibilities towards the public which must be performed, but they do not want us to exceed our duty. We have appointed ourselves their champions and guardians; they do not want our protectorate, and won't have it.

In times of peace the people may criticize and abuse the army, but, nevertheless, they look to the army for protection when danger threatens. It is held responsible for the security of the state, and no excuses will be accepted. So it is with us. The public will hold us responsible whatever happens.

But to go back to the education of the public. We propose to educate them in something that is above their intellectual capacity—to discriminate between things medical and scientific. But the public does not want to be educated. They will not listen.

Of course, knowledge may be spread, but this can only reach a few because only a disappointingly small number can understand. The rest are not interested. We owe it to the public to keep our profession in a high state of honor and proficiency. So, if we do not want to admit a heterogenous crowd of men and women from the cults, we will have to find some way of keeping them out ourselves. The public expect us to be self-reliant. We shall have to try to keep our fate in our own hands.

"Educate the public" is simply a phrase coined by phraseologists. As such it is vague and ambiguous and really meaningless; otherwise we would not find it so frequently in the mouths of those who are at a loss for something to say. Deep down in the heart of the public they do not take the cults seriously, and they are quite amazed at our attitude towards them—at the terror they inspire in us; to-day we warn the people against and to-morrow we throw them open the gates and take them in. Our inconsistency is marvellous; a cult left alone is harmless. The public will rave about them for awhile and then forget that they ever existed.

The cult itself is nothing more than a ladder used to scale the walls of medical licensure. When the last Osteopath and Chiropractor is up, then the ladder will be taken down. When the gates are opened the cult will be left outside.

When we have absorbed the Chiropractors and the Osteopaths we shall find that we have paid a price in things higher than material greed and gain.

We shall have cheapened our personnel, destroyed our "esprit de corps," dulled our professional pride, and so reduced our ethical

standard that it will take us a generation to recover our morale. By that time we shall hear more noise outside the walls, and other cults will be clamoring for admission. If we cannot educate the public we can study public psychology, which is a subject that has been sadly neglected by us, but the cults study nothing else.

There should be one avenue, and one alone, to medical licensure. All by-paths and tunnels should be closed up and forever sealed. One unbending requirement should be graduation from a duly accredited regular medical school. If the people wish to patronize the cults, that is their own look out; we cannot prevent it any way, and why should we want to?

The people do not give us their ear, because they think that our motives are sordid. These motives are unworthy of our calling. Medicine is a structure erected by men. The thinking in it has been done by men. It is peculiarly a man's calling, more so than any other profession.

To watch a Chiropractor or an Osteopath at his day's work is pathetic. A real doctor could not stand it. We are being frightened by a great big bogey anyway. We should get over our eagerness to educate everybody, the public included. They do not like our assumption of superiority. Moreover, charity should begin at home. Instead of lavishing education on the cults and on the public we need it ourselves and need it badly.

If a poor old Chiropractor wants to make a little bread and butter, why should we get excited? He is dealing with the same whimsical and hard-to-please public that we have got to deal with. If we can only leave them alone and pass no more laws dragging them into medical practice, all will be well, and we can tell them to "quit knocking at our door."

If the cultist wishes to practice his art as a cult, let him practice it, but it is not incumbent on us to educate him or insist that he practice medicine. We reason too much by analogy. We seem to run along parallel lines with the cults, but if we look closely, we shall see a divergence. Even Homeopathy was not a medical cult until we made it so; and if we had left it alone it would have run off into space.

The American doctor has much to distress and annoy him. If medical practice were regulated by federal, instead of state law, his lot would be a happier one. He would not then have to go before the people and beg for rights which are his, naturally. The public have set



such a high standard of excellence for him that it is difficult for him to live up to their expectations, harassed as he is by economic conditions. This disappointment has much to do with his

troubles, personally he is a fine fellow. He has got one trait that distinguishes from the medical men of other lands. He is not class-conscious. This gives him a charm that is all his own.

## THE CLINICAL LABORATORY: XII. BLOOD\*

BY WALTER E. KING, A.M., M.D.

SAINT PAUL

### CLASSIFICATION OF PATHOLOGICAL CONDITIONS WITH RELATION TO BLOOD FINDINGS

#### 1. Diseases which depend upon blood examination for accurate diagnosis:

Pernicious anemia  
Chlorosis (green sickness)  
Secondary anemia  
Lymphatic leukemia  
Myelogenous leukemia  
Plumbism  
Malaria  
Filariasis

#### 2. Diseases or pathological conditions, the diagnosis of which is materially assisted by blood examination:

##### Suppurative inflammations:

Sinusitis  
Appendicitis  
Pyelitis  
Pleuritis  
Abscesses

Tumors with ulceration

Tuberculosis with sepsis

##### Certain infectious diseases:

Scarlet fever  
Pertussis  
Congenital syphilis  
Epidemic influenza  
Measles  
Typhoid fever  
Pneumonia

##### Parasitic infestation:

Trichinosis  
Ascaris  
Hook worm

#### 3. Diseases or pathological conditions which present certain characteristic findings in the blood:

##### Certain infectious diseases:

Erysipelas

Smallpox  
Mumps  
Meningitis  
Diphtheria  
Gonorrhea (posterior urethra)  
Chickenpox  
Eclampsia  
Drug poisoning:  
Quinine  
Salicylates  
Phenacetin

##### Certain skin diseases:

Blastomycosis  
Scabies  
Pemphigus  
Herpes zoster  
Psoriasis

##### Some diseases of endocrine glands

Cirrhosis of liver

Rachitis

Bronchial asthma

##### Some chronic diseases with hemorrhage:

Hemophilia  
Gastric ulcer  
Hemophilia  
Parasitic infestation

Banti's disease

Von Jaksch anemia

Gastric ulcer

Hodgkin's disease

In conclusion, it may be stated that much can be learned by a routine examination of the blood and a study of its morphological elements. In certain diseases, accurate diagnosis rests upon the results of blood examinations. In many conditions, a study of the blood offers valuable diagnostic, prognostic and therapeutic data.

The results of hematological research are accumulating to the advantage of clinical knowledge. This branch of experimental medicine will doubtless continue to yield much that will be of value to the physician and surgeon.

\*This is the twelfth of a series of articles by Dr. King on the Clinical Laboratory.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of April 9, 1924

DR. A. S. HAMILTON, Presiding

The regular monthly meeting of the Academy was held at the Town and Country Club on Wednesday, April 9, 1924, at 8 P. M. The meeting was called to order by the President, Dr. Hamilton. There were 43 members and 2 visitors present.

The minutes of the March meeting were read and approved.

The following members reported cases:

Dr. John Fulton (St. Paul) reported a case of beginning panophthalmitis due to trauma successfully treated by milk used as a foreign protein, as follows:

Mr. W. W. T. was assaulted August 5 by being hit with the fist on the left eye, driving a piece of the glasses he was wearing into the eye, severely injuring the cornea, cutting it horizontally through the center down to the limbus on both sides.

I saw him early on the morning of the 6th. The eyeballs and lids were badly inflamed, but the pupil easily dilated with atropin so that I could get a clear view of the fundus. The evening of that day I was called to his house to see him again and found a very severe septic inflammation starting in; the lids and bulbar conjunctiva being edematous and many small hemorrhages showing themselves in the conjunctiva. He suffered great pain in the eye throughout the night. He came to the office the following morning with all of the above symptoms increased. The pupil no longer responded to atropin. The edges of the corneal wound were white with septic matter. There was pus in the anterior chamber. All the structures of the eye were badly inflamed. A typical picture of commencing panophthalmitis.

Dr. Paul Berrisford saw the case with me in consultation. He quickly recognized the gravity of the eye condition and strongly urged the milk protein treatment.

The patient was immediately sent to St. Luke's Hospital. On the afternoon of that day he was given 6 c.c. of milk boiled for four minutes; this by the intramuscular route. This produced no constitutional reaction.

The next day Dr. Carl Larsen examined the case with me, and he strongly endorsed the treatment, but advised an increase of the dosage, which was pushed up to 12 c.c. with the most gratifying results. The patient's temperature went up to 101°. The pupil began to dilate, and the intense tenderness of the eyeball, which had been caused by the rapid onset of the septic iridocyclitis, had almost completely disappeared.

The intramuscular injections of boiled milk were kept up for several days longer until the eye became quiet, the inflammatory effusion became absorbed, and the eye was soon restored to the condition that it was in before it was injured.

My object in reporting this case to this society, instead of to the Academy of Ophthalmology, is to open up the question as to whether or not this same treatment will benefit similar inflammatory conditions in other parts of the body.

Gratifying results from parenteral protein therapy can be abundantly found in the reviews of our medical Journals. One of the most interesting reports is from De Andrade, of Rio de Janeiro, in which he reports the most gratifying results in treating post-operative iridocyclitis and three cases of gonococcus in which he obtained prompt and complete relief of this most dangerous disease. One of his cases was suffering from urethritis and an old suppurative otitis media, both of which promptly healed under the influence of the same therapeutic remedy. He never used more than eight injections and never witnessed any unfortunate effects.

Many foreign proteins are now most popular remedies in the treatment of septic diseases, but milk seems to be the most important, reliable, and marvelous in its effect, according to a careful survey of very extensive literature from reliable sources. Schmidt, of Prague, although having had experience with other proteins, in 1915 selected cow's milk for this purpose, assigning for the reason that it was always available, its chemical composition was constant, whereas the composition of the artificial proteins and their derivatives is subject to considerable variation.

There is no doubt as to its wonderful efficiency in acute iritis, iridocyclitis and gonorrheal conjunctivitis. For the former it quickly relieves the pain and breaks up the synechiæ, which resist atropin. This agent is a powerful prophylactic, and for this purpose is being used by many surgeons, with the object of reducing the chances of infection. Many members of my own specialty use it as a preventive in cases of cataract operation where they have reason to fear septic complications and to aid in relieving septic conditions which still, though very rarely, take place after cataract operations.

## DISCUSSION

DR. BROWN: I have used some of these milk injections myself and they do work well in some cases and not in others, and I have been striving to find something that could be standardized better. Dr. Boeckmann, I believe, started these injections in St. Paul. Dr. Boeckman got certified milk at first, and the injections were very unsatisfactory, so he went down to one of the restaurants and got some of their milk, and he then had some very good results.

You are introducing a foreign protein into the system, and that is the thing which turns the case and that keeps these toxins from developing. While milk has done a great deal in these cases, I do not see how it is going to be standardized. Some work is being done on other substances. If we could get another foreign protein which is in the nature of



some standardized substance like the vaccine proteins, which we introduce for typhoid, and available to everybody in standardized form, I think it would be a fine thing. I think that we are working along the right direction, and that something of that sort will be evolved eventually. There is no question but what the foreign protein turns the tide for the patient and that a great many eyes are saved in that way.

DR. ULRICH: I just want to add a word in regard to standardization. The only instance of standardization of therapy in immunity is in the field of soluble poisons—toxins and antitoxins—in diphtheria, botulismus and tetanus. In the field of non-specific protein therapy we are dealing with an unknown chemical substance—protein—and its action on a body in which the laws of weight and mass come into play. So that each individual is a law unto himself. In each instance the dose is experimental and will always be so. There is no way of standardization.

Dr. R. E. Farr (Minneapolis) reported a method of diagnosing so-called "potential" inguinal hernia by means of pneumoperitoneum in instances where the diagnosis could not be made clinically in any other manner except by operation. Dr. Farr stated that he considered that the use of this method, if experience shows that it is safe, will prove an excellent means of clearing up the question of the so-called "traumatic" hernia. Radiograms were shown.

Dr. H. P. Ritchie (St. Paul) gave a talk on some of the problems of treatment of malignancy about the face, head and neck, and illustrated it with numerous lantern-slides.

Dr. E. S. Judd (Rochester) read a paper on "Diverticulitis of the Colon," which was illustrated with lantern-slides.

#### DISCUSSION

DR. A. SCHWYZER: Dr. Judd has spoken about the etiology of diverticulitis. This point is as yet all practically in the stage of speculation, and so one is allowed to speculate a little bit, too. Just a general weakness of the wall of the intestine could hardly be considered an etiological factor because,

if the diverticulum is not congenital, then we must consider it a pressure diverticulum where the mucosa and submucosa are pushed out; in other words, a very strong contraction of the intestine might bring it on with a comparatively weak spot in the wall.

Klebs found the diverticula to be located just where the vessels enter the intestinal walls, and Dr. Judd has told us that they found diverticula comparatively frequently in fat people. If we now consider that fat especially locates around these entering vessels, we see here a gap in the muscular wall and a lack of resistance at this place during forcible contraction of the gut. I cannot help feeling that these severe contractions of the colon have their effect, especially when people can not always obey nature's call when it should be. Too much and too prolonged resistance to nature's call must therefore be detrimental.

Our old friend, Dr. S., had symptoms that looked like carcinoma of the colon, and autopsy showed that he had innumerable diverticula from one end of the colon to the other, which reduced the colon to a hard thick cord.

I think a few meetings ago I mentioned a woman who had discharge of vesical calculi for many months. The patient one day brought calculi in a box. There were more than twenty of them. They did not seem quite as firm as ordinary calculi, almost somewhat elastic. They were recognized as hardened fecal masses. The cystoscope allowed us to recognize a hole above the trigone. We opened the abdomen, went down along the posterior wall of the bladder until we got to a thick mass which we cut away from the bladder. A small opening into the bladder was closed. Then we dissected this mass from the lower colon which also had a fistulous looking opening into this mass, which was a thick inflamed diverticulum. Apparently the fecal matter had got into this diverticulum, gradually hardened and finally perforated into the bladder at regular intervals.

The wealth of material reported by Dr. Judd is striking for one who sees this class of cases only at long intervals. Perhaps the reason why we do not see more of this condition is that we do not go through our cases as readily with x-ray examination.

—JOHN E. HYNES, M.D.  
Secretary.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

JUNE 1, 1924

## POLITICS AND PUBLICITY FROM A MEDICAL ANGLE

The time is very near when all loyal citizens of Minnesota are expected to cast their votes at the primaries, June sixteenth, for various delegates and officers of the state, county, and municipality. Judging from the conditions which have lasted over from 1923, if the people are to be successful in their choice they must turn out and vote; otherwise the non-voter will control the situation politically, for it is the man who does not vote that shapes the destinies of his official family. There are now more than sixteen candidates for governor, six of whom are running on the Republican ticket, and most of whom are confident of the nomination! The rest of the candidates are divided between the Democrats and the Farmer-Labor group and other organizations with which we are not familiar.

In a way, this year seems to be a crucial year in trying out the vigil of the people, to see whether they are alert to constructive or destructive candidates. If we do succeed in electing as our next governor and a legislative body men like we have representing us in congress, it may save the possibility of bills of an unnecessary character, because there will be much wind, some talk, and very little real, thoughtful expression. The women's organizations are in just as much trouble as the men's; the women are as indifferent and unwilling to cast their votes, for any party—

they simply sit, as we do, and think there is no use trying to elevate the body politic. There is where we are going to fall down, unless we have a stimulant of some sort to urge us on to register, to vote, and to select with our best judgment the men who will be of greatest service. We, as medical men, should take an active part in general political issues, not by self-advertising, but by our rôle as citizens, something for the good of the people. We should be as much interested in their public welfare as we are in their medical welfare. The effort has been made to bring about the publicity of the medical man, as was shown by the good work done by the Minneapolis Health Exposition. Consequently, the medical man need not hesitate to enter the field of publicity and with due modesty, but with more vigor, present his cause to the people. He must be able to show that the medical man has advanced in medical knowledge and in his ability to care for the public from a public-health point of view, as well as from the specialist's point of view. We must see to it that the man we select as our nominee for governor is on the right side of constructive medicine. This can be easily ascertained by a conversation with the many candidates, at least in a general way. And doubtless the majority of the candidates would express themselves as favorable to the medical profession, but a little investigation might reveal that these promises were shallow, and we want something convincing.

THE JOURNAL-LANCET is firmly convinced that any effort made in the coming legislature to secure any new legislation in a new medical-practice act would be met with dire defeat, and therefore our entire energy should be spent on keeping what we have,—Minnesota's old law, which is safe and sane; uphold it in every way, so that it may continue in force as a helping hand and not as a hindrance. To be sure, it may be necessary some time, to change our laws in some minor particulars, but the coming year is no time to indulge in any attempt at revisions. It has been suggested, too, that we have been less interested in our legislative functioning body than we should be; that it was shown at the last legislative session that very few medical men expressed their views to the members of the Senate and House, and that not infrequently the committees that had medical matters in hand were anxious to know how medical men felt. And we should be ready with our advice or explanations of what we think advisable for the good of the



public; if we do not, it is quite certain that the various cults and their organized efforts will stand ready to offer the advice that should come from medically trained men.

### THE FORMATION OF A SOCIETY OF OPTIMISTS

The formation of this new organization followed closely upon the departure of the Apathy family that have been visiting in various parts of the country. It was found that there was altogether too much complaint on the part of a certain number of people as to the amount of work they did, the amount of money they received, and the fact that the entire world was going to the dogs. A habit, a nervous habit, had been growing on the people, who seemingly delighted to exhibit their psychoneurotic tendencies by claiming that the pressure of the times was so great that they could not possibly continue either to do business or to carry on trade. All of which, fortunately, is simply delusion on the part of these individuals.

The more this thing is talked about the more the pessimist gets into the limelight, and, instead of crying his pessimistic wares, he should remember that he is one of the people and that the only way to improve conditions, even as he sees them, is to get busy, do his work as he should, keep a stiff upper lip, and smile himself through this temporary bank of fog. It has been said by those who know that business conditions are not as bad as the pessimist represents; that certain parts of the country have shown a gradual improvement over last year, and that, although the amount of money that is handled is not quite to the liking of the inhabitants, it shows an improvement over what was taken in a year ago. If it were not for the political upheavals, if it were not a presidential year, and if it were not for the presence of this detestable band of whiners, fault-finders, and long-faced flat-bellied men, the country would get along quite as well as it has before. It is quite true that since the summer of 1921 there has been a decline in all lines of business, and that the recovery from the decline has been slow; but that the recovery is on its way is self-evident. Financiers, bankers, and other business men are constantly speaking words of encouragement covering the conditions of the country, and it seems inevitable that whatever depression now exists is gradually righting itself. And for this reason this new organization, financed by the spirit of loyalty and good faith and a desire to help, has elected its staff of

officers and is ready to receive applicants for membership. Who the officers are THE JOURNAL-LANCET declines to reveal, but it may be taken for granted that they are men of good standing and may be relied upon to carry on the work with which they are entrusted. References are any bank or any profession that is organized. No man who weeps and wails at the condition of the country, or cries hard times, will be eligible for membership until after his credentials have been lying on the table for at least one year; by that time, if he has reformed, and re-adjusted his mental outlook he may get in and be accepted as a member; and during that year of probation it may be he will be the man who will be holding on by the edge of his teeth, instead of the man who is attempting to carry on his work and his lot in life, however dismal it may seem, with cheerfulness and hopefulness. The initiation fee cannot be computed in dollars and cents, but it can be recognized by hollers and sense. Boost for your optimistic club; put it over in big numbers, and you will find that this line of "new thought" will do more than any other system of faith-healing or any of the so-called cult societies that are supposed to be in existence now.

### THE SOUTH DAKOTA STATE MEDICAL MEETING

The meeting of the South Dakota State Medical Association at Mitchell, South Dakota, on May 20 and 21, presented all evidences of continued medical interest when an attractive program is offered. There were approximately 150 men registered, and they evinced their interest in and loyalty to the Association by listening to the entire program. South Dakota very wisely adopted a change, or made a departure from the usual custom of previous years, in that the program was largely of dry clinics by men who were proficient in their different specialties.

The meeting was held in the Metropolitan Theater, and continued the entire day Tuesday, including the evening program, and all of Wednesday. Minneapolis seemed to be pretty well represented as there were three men on the program: Dr. F. W. Schlutz, head of the Pediatric Department of the University of Minnesota; Dr. J. A. Pratt, of the Eye, Ear, Nose and Throat Department; and Dr. F. L. Adair, of the Department of Gynecology.

The morning program on Tuesday consisted of a clinic by Dr. Walter Sheldon, of the Mayo Foundation, on "Nervous Diseases," and a clinic by Dr. A. D. Dunn, of Omaha, on "Diseases of

the Heart," taking up the entire forenoon and giving both men an opportunity to show plenty of clinical material and discuss the usual things that occur in general practice. In the afternoon, Dr. J. S. Pritchard, of Battle Creek, Michigan, gave a very stimulating talk on "Chest Conditions," either tuberculosis or simulating tuberculosis. His talk in the evening was on the "Treatment of Tuberculosis by Sunlight and Sanitarium Treatment, Combined with Surgery," particularly referring to Rollier's work among Swiss children.

Dr. Adams, of Winnipeg, supplemented Dr. Pritchard's paper by a paper on chest tuberculosis, in which he illustrated some of his points with patients supplied by Mitchell physicians,—a dry clinic.

Dr. E. C. Rosenow, Chief of the Department of Experimental Medicine of the Mayo Foundation, gave two talks on his studies relative to influenza and the relation of experimental medicine to present-day life. Dr. Rosenow has advanced many new theories and many new problems that are stimulating others to follow in his path.

The representative men of South Dakota were at the meeting in full force, and as an organization they showed the high point to which the State Association has developed; and, unless some of our other state societies wake up, South Dakota will soon be in the lead from an interesting-program point of view, as well as a representative point of view.

The editor of THE JOURNAL-LANCET had the pleasure of sitting in with the House of Delegates and the Councilors at their meeting at noon on Tuesday, and was very much pleased to learn that the cordial relations between THE JOURNAL-LANCET and the South Dakota State Medical Association still continued, which was manifested by the renewal of the contract with the Association and the expression of friendly good faith and the assurance of the fact that the attitude of the profession of South Dakota toward the paper was entirely satisfactory. The editor wants to express his appreciation publicly through these columns to the chairman of the House of Delegates and to the Delegates and Councilors, as well as to the officers who were present. The men in the state of South Dakota have produced a goodly number of papers which have been of more than state-wide interest, and very frequently the South Dakota men are quoted by the abstractors and by other medical journals.

The meeting next year will probably be a very large one, and plans are being made to have it so that it will be partly a recreational jaunt as well as a meeting of medical interest.

## BOOK NOTICES

THE NEW SCIENCE OF RADIENDOCRINOLOGY IN ITS RELATION TO REJUVENATION BASED ON THE RADIATION TECHNIC OF DR. EUGEN STEINACH OF VIENNA. By Herman H. Rubin, M.D., Director of the American Institute of Radiendocrinology. Medical Science Publishing Co.

After stating the value of rejuvenation to the race, the author, in this little book, goes on to describe the endocrine chain giving the various functions of each gland. He also quotes several other authors with whom he agrees that the sex glands are not merely a link in the endocrine chain, but the dominating influence in the well being of all the endocrines. The entire body is described as "a complex chemical laboratory supervised by the endocrines, the whole plant operating with marvelous precision under electronic influences of ionization." These electronic impulses are furnished by the normal chemical processes going on in the body when the endocrines are functioning properly. Hence if the dominating secretion (sex glands) is being supplied in sufficient quantity, the rest of the chemical laboratory functions properly; there is no sub-ionization and therefore no old age or pre-senile states.

So by his new science called "Radiendocrinology" the author is able to stimulate the endocrines by radiation to greater activity. The instrument used is called the "Radiendocrinator." There is no accurate description of it only that it is more powerful than radium, etc., and more expensive. It can be used for "Home Treatments" by being applied at night over the sex glands for a certain length of time. Finally he states that diabetes, diseases of the kidney, prostate, obesity, etc., can be cured by the use of his Radiendocrinator.

There are no scientific data nor case reports to substantiate these conclusions.

—R. F. McGAUDY, M.D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month). Volume 3, No. 1, February, 1923. Philadelphia Number: Vol. 3, No. 3, June, 1923. San Francisco Number: Per clinic year (February, 1923 to December, 1923) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London. W. B. Saunders Company.

As usual, these numbers of the "Surgical Clinics" cover a wide range of subjects, and have the directness and concreteness that have always characterized this series and made it so valued. However, the most vivid impression that remains with me after reading these particular numbers, is that any-



one interested in surgery is always sure to find some of his own problems of the moment discussed in whatever number of the "Surgical Clinics" he may open.

Deaver's discussion of the sequelæ of suppurative appendicitis, with presentation of a case, was of great interest to the writer especially as he had just heard a discussion of the subject at a weekly clinical-pathological conference at St. Mary's Hospital. The case of "acute appendicitis" which proved to be acute pancreatitis also called to mind another like it in our recent discussion.

Ashhurst presents a series of seven cases illustrating some aspects of surgery of the stomach. The ulcer which he found on the lesser curvature near the cardiac orifice was resected, and was later found microscopically to be cancerous. The discussion was especially valuable to our staff as it came just at the time of a personal encounter with a very similar case.

In both numbers there are cases of gall-bladder disease of various types presenting serious difficulties in differential diagnosis and treatment. There is one especially interesting series of three cases of chronic cholecystitis simulating gastric malignancy. In all three cases the pre-operative diagnosis of the clinicians and the röntgenologist was probable pyloric carcinoma. Another case of special interest to us was one of obstruction of the cystic duct by an enlarged lymph node.

Some well-illustrated gynecological clinics are found in both numbers. They are concrete and practical. Bone surgery is unusually well represented. We find a case of cervical rib, some knee resections, fracture-dislocations of the carpal bones, fractures of long bones, tuberculosis and also dislocation of the hip, and cases of osteomyelitis. One case of carbuncle of the neck and one of tuberculous cervical lymphadenitis give very practical hints. We were interested in the series of cases of unilateral exophthalmos.

A number of reports will be of interest to urologists. One patient with hydronephrosis due to an aberrant artery underwent nephrectomy. Another patient with double right kidney illustrates the difficulty in the differential diagnosis between renal calculus and appendicitis. The case of pyonephrosis on the basis of an abnormal renal pelvis tells a lesson to be remembered.

—T. H. SWEETSER, M.D.

INTERNATIONAL CLINICS. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, in collaboration with others. Volume I, 34th series, 1924. 308 pages. Illustrated. Philadelphia and London: J. B. Lippincott Company, 1924.

According to the jacket of this volume, the most valuable articles are those on the gall-bladder, by J. E. Sweet of Pennsylvania, on exophthalmic goiter, by L. F. Barker, of Johns Hopkins, and on essential hemorrhagic purpura, by Nathan E. Brill, of Mt. Sinai, New York. The reviewer is in agreement regarding the last-named article, unreservedly, and as to the first article with reservation, whereas the Barker article could be simply and routinely considered without stress.

Barker discusses, in some detail and with considerable philosophy, the clinical picture of exophthalmic goiter and the management. His interpretation of the underlying pathology as being outside the gland itself and caused by some agent acting jointly upon the endocrin and vegetative nervous system is broad enough to be in accord with any of the present-day teachings. His insistence upon treating each case as an individual and by such steps as rest and forced feeding therapy, ligations, and partial to complete lobectomies, is properly taken. Although containing nothing new, it is what he intends it to be—a readable résumé for the general man.

J. E. Sweet takes as his theme the gall-bladder, its past, present and future, attempting to assemble pertinent information concerning the embryology, the actual structure and pathology, and data contributing to a reasonable judgment as to the state to which the gall-bladder may be regulated in the future; that is whether it shall be held entirely inviolable except in dire extremity as the pancreas now is, or whether it shall be considered in the light of a vestige as the appendix. Leading up to a basis for final decision, certain almost forgotten structures are brought to light, namely, Heister's spiral valve of the cystic duct; the mucosa, with its muscular coat; the lymphatic supply; and the parietal sacculi of the bile ducts. From these facts the principal function of absorption is deduced and the adjunctive function of fat and cholesterol metabolism, first advanced by Aschoff and recently newly worked up by Boyd, of Toronto, is revived. This article is well considered and constructed without needless detail and erudition.

By far the most valuable article of the volume is that by Brill on essential hemorrhagic purpura, because of the life-saving therapeutic suggestion of splenectomy for the accurately diagnosed case. The condition may be differentiated and diagnosed by four simple tests—the capillary resistance test of Hess (appearance of petechiæ on an extremity distal to a constricting pressure); the platelet count, which is markedly diminished; the prolonged bleeding time with normal clotting time; and the failure of a clot of blood to retract. Given an accurate diagnosis, splenectomy is curative in an otherwise absolutely fatal condition.

The other articles in the volume need only passing comment. Griffith gives a clinical analysis of chronic valvular disease in children and a discussion of cerebral spastic diplegia. There is a symposium on the new-born by Willson, O'Donnell, Moser, Foote, and Eichenlant, in which such subjects as infant mortality statistics, birth hemorrhages and fractures, inanition, hemorrhagic tendencies, pylorospasm and stenosis, and skin affections are considered, together with an article designed apparently for students or nurses on routine care of new-born.

Under the heading of "Diagnosis and Treatment," John Clark comments quite favorably on the use of radium to control benign uterine bleeding and in treatment of cancer of the cervix. Parkes Weber of London takes up the question of operative establishment of collateral circulation in chronic ascites; René Cougé, of Paris, discusses the various types of measles and the use of convalescent serum, both

prophylactically and therapeutically; Magnac, of Versailles, gives a complete report of a case of tuberculosis of the spleen, with the pathology and differential diagnosis. Gordon, of McGill, frankly admits that about all that is known of migraine is that it is probably hereditary, and he pessimistically suggests that the late James Stewart's treatment of bed rest in a cool, dark room with a cup of strong black coffee is about as good a treatment as anything. The unusual association of herpes zoster of the maxillary division of the cranial nerve with complete paralysis of the seventh is presented by Lloyd and Elliot.

In the treatment of anal, anorectal, and rectal fistulæ, Pennington, of Chicago, advocates complete dissection with primary suture or what he calls the "seton" method. Drueck enumerates normal and abnormal fecal constituents with an outline for routine examination of material which should be valuable to the laboratory technician.

For those occupied with industrial medicine, Rector gives a summary of various important medical aspects of workmen's compensation laws, and Price points out the need for much more extensive and efficient industrial health supervision. The Progress of Medicine for 1923, by the editor of The Clinics, Henry W. Cattell, does not lend itself readily to abstract, being itself a review.

The general impression of this March number is that Sweet's article is worth while in calling attention to some points of gall-bladder structure not considered in the present trend toward functional ideas, but necessary of consideration lest unwarranted therapeutic enthusiasm is to prevail; and that most certainly Brill's article should be read, inasmuch as many lives will be saved by putting into practice his suggestions.

—J. B. CAREY, M.D.

## NEWS ITEMS

Dr. C. I. Spannare has moved from Milton, N. D., to Inkster, N. D.

Dr. John F. Fulton, of St. Paul, has gone to Europe, and will return in July.

The annual meeting of the Chisago Pine County Medical Society was held at Pine City last month.

Drs. H. E. Allen and C. L. Bury, of Geddes, S. D., are planning to open another hospital in that city.

The editor of THE JOURNAL-LANCET attended the annual meeting of the South Dakota State Medical Association last month and makes some comments about it on another page.

Dr. S. E. Hurley, of Gettysburg, S. D., observed the fortieth anniversary of his practice in that city last month.

Dr. Owen W. Parker, of the Shipman Hospital at Ely, was elected president of the Rotary Club of that city last month.

Drs. L. D. Peck and H. A. Fasbender, of Hastings, have opened the former Adsit Hospital for the care of their patients.

Dr. J. W. Campbell has moved from Fargo, N. D., to Moorhead, Minn., where he will do eye, ear, nose, and throat work exclusively.

Diplomas were given to ninety-six graduating nurses last month by St. Mary's Hospital and the Kohler School of Nursing at Rochester.

Dr. J. A. McIntyre, of Owatonna, has been promoted from the rank of captain to that of major in the Medical Officers' Reserve Corps in the U. S. Army.

A free baby clinic given at our Lady of Lourdes Hospital last month by The Hot Springs Clinic at Hot Springs, S. D., drew babies from South Dakota, Wyoming, and Nebraska.

The reward of \$2,000 offered for the discovery of the body of the late Dr. F. E. Fyle, of Geddes, S. D., was promptly paid to the two farmer boys who discovered the body last month.

The new Wilder Dispensary Building, erected in St. Paul by the Amherst Wilder Charity, is ready for occupancy. It cost over \$200,000, and is a handsome four-story brick and stone structure.

Dr. John Landenberger, of New Prague, died last month at the age of 73. He had practiced medicine in New Prague nearly fifty years, and had held many positions of trust in the city and county.

The Red River Valley Medical Society held a quarterly meeting last month at Crookston. Dr. Theodor Bratrud, of Warren, talked on the work done in the clinics of Eastern cities, which he recently visited.

In our last issue we noted that Dr. Hans Golbach, of Vienna, had joined the staff of the Bartron Hospital and Clinic, which we placed at Mitchell, S. D., instead of Watertown, S. D., where they are located.

At the annual meeting of the Southern Minnesota Medical Association, held last month at Mankato, Dr. H. M. Meyerding, of Rochester was elected president, and Dr. H. T. McGuigan, of Red Wing, was elected secretary.

The General Hospital of Minneapolis has hitherto not admitted women as internes on the ground that they were not fitted physically for much of the work. This policy has been changed, and women internes are now admitted.



By hearty and early co-operation between the State Boards of Health of North Dakota and Minnesota, a threatened typhoid fever epidemic, which originated in Fairmount, N. D., near the border line of the states, was prevented.

Dr. E. W. Hammes, of Hampton, has retired from practice after over forty years active practice in Minnesota. He graduated from Rush in 1882. Dr. Ivan Linsin, formerly of Fergus Falls, is caring for Dr. Hammes' work temporarily.

*The Modern Hospital*, of Chicago, offers three cash prizes of \$350, \$150, and \$100, respectively, for three best essays on "The Inter-relationship of Hospital and Community." Details of the competition may be had from the Modern Hospital Publishing Co., Chicago.

Dr. Edward J. Davis, who was a pioneer Minnesota physician and practiced in Mankato for a number of years, died in Ontario, Calif., last month. Dr. Davis graduated from the Albany College of Medicine in the class of '67, and at once came to Minnesota to begin practice.

Dr. George W. Davis, of Duluth, died last month at the age of 71. Dr. Davis was a graduate of the Detroit Medical College, class of '79, and began practice in Duluth in 1883, where he remained until his death. He was County physician for a number of years and held office in the city government a number of times.

The Supreme Court of Minnesota has decided that a contract made between two physicians, one of whom is employed by the other for a definite term and agrees not to enter practice in the same city or within a reasonable distance from it and within a reasonable term of years, such contract can be enforced by injunction. This principle would hold in case one physician sells his practice (good-will) to another and agrees not to resume practice within reasonable time and a reasonable distance from the home or office of the physician purchasing the practice.

At the June 24th meeting of Lymanhurst and Parkview medical staffs, the following program of short talks will be given: "Vital Capacity Studies in 3,100 University Students," Dr. W. P. Shepard; "Vital Capacity and the Lungs and It's Significance in Hyperthyroidism," Dr. C. A. McKinlay; "Vital Capacity as a Functional Test for Heart Diseases," Dr. Thos. Ziskin; "The Effects of Pregnancy on Vital Capacity," Dr. Warren J. Bell; "Further Studies on Normal Vital Capacity Standards," Dr. L. H. Cady; "The

Vital Capacity in Congenital Heart Disease," Dr. M. H. Nathanson; "The Effects of Certain Diseases of the Lungs and Pleura upon the Vital Capacity," Dr. C. H. Rice. All physicians are invited to attend these meetings.

The South Dakota State Medical Association held its forty-third annual meeting at Mitchell, S. D., last month. The following medical men outside of the state were on the program: Drs. W. D. Sheldon and C. E. Rosenow, of the Mayo Clinic, Rochester; Drs. F. W. Schlutz, J. A. Pratt, F. L. Adair, and Wallace Cole of the University of Minnesota; Dr. J. S. Pritchard, of Battle Creek, Mich.; and Dr. A. D. Dunn, of Omaha, Neb., formerly Professor of Medicine in Creighton University. The following officers were elected for the current year: President, Dr. R. L. Murdy, Aberdeen, S. D.; first vice-president, Dr. W. R. Ball, Mitchell; second vice-president, Dr. T. E. Riggs, Pierre; third vice-president, Dr. S. M. Hoff, Yankton; secretary-treasurer, Dr. R. D. Alway, Aberdeen.

#### THEY "RUSHED" SOUTH DAKOTA

Dr. F. E. Clough, of Lead, S. D., class of '02 of Rush Medical College, presided at the forty-third annual meeting of the South Dakota State Medical Association held at Mitchell on May 20 and 21. The program consisted of "dry clinics" by celebrities from outside the state, four of the eight being Rush alumni:

Dr. Walter Sheldon, '95, of Rochester.

Dr. F. L. Adair, '01, of Minneapolis.

Dr. A. D. Dunn, '02, of Omaha.

Dr. E. C. Rosenow, '02, of Rochester.

More than 150 South Dakota physicians enjoyed the best program ever given at a State Association meeting.

The Rush alumni present gathered about the supper table at Widman Hotel as the guests of Dr. W. R. Ball, '02.

After the feast the earliest Rush graduate in South Dakota, and Dr. R. F. Dundas, '74, of Mitchell, told of interesting times of Rush "under the sidewalk." The latest Rush man present, Dr. O. Chas. Erickson, '20, of Sioux Falls, spoke.

But this was an '02 event for there were nine of the class of 1902 present.

Fine talks from our guests were given by Dr. A. D. Dunn, '02, of Omaha; Dr. E. C. Rosenow, '02, of Rochester; Dr. F. H. Roost, '02, of Sioux City. Then we heard from President F. E. Clough, '02, of Lead; Dr. W. R. Ball, '02, of Mitchell; and Dr. Chas. E. McCauley, '02, of Aberdeen.

The following Rush men were present.

Dr. R. F. Dundas, '74, of Mitchell.

Dr. O. R. Wright, '93, of Huron.

Dr. F. W. Freyberg, '95, of Aberdeen.

Dr. W. D. Sheldon, '95, of Rochester.  
 Dr. C. L. Wendt, '02, of Canton.  
 Dr. A. J. Moe, '97, of Sioux Falls.  
 Dr. T. J. Wood, '97, of Huron.  
 Dr. F. L. Class, '99, of Huron.  
 Dr. F. L. Adair, '01, of Minneapolis.  
 Dr. G. S. Adams, '01, Yankton.  
 Dr. J. C. Ohlmacher, '01, of Vermilion.  
 Dr. G. W. Potter, '01, of Redfield.  
 Dr. W. R. Ball, '02, of Mitchell.  
 Dr. F. E. Clough, '02, of Lead.  
 Dr. A. D. Dunn, '02, of Omaha.  
 Dr. L. N. Grosvenor, '02, of Huron.  
 Dr. D. S. Kalayzian, '02, of Parker.  
 Dr. C. E. McCauley, '02, of Aberdeen.  
 Dr. C. O. Olson, '02, of Groton.  
 Dr. F. H. Roost, '02, of Sioux City.  
 Dr. E. C. Rosenow, '02, of Rochester.  
 Dr. J. F. Adams, '06, of Aberdeen.  
 Dr. O. A. Kimble, '08, of Murdo.  
 Dr. A. A. McLaurin, '11, of Pierre.  
 Dr. E. M. Young, '12, of Mitchell.  
 Dr. R. Reagan, '13, of Sioux Falls.  
 Dr. R. G. Willy, '16, of Mitchell.  
 Dr. C. G. Lundquist, '18, of Leola.  
 Dr. B. H. Unruh, '19, of Emery.  
 Dr. O. C. Erickson, '20, Sioux Falls.

Signed by,

—L. N. GROSVENOR, '02,  
 Huron, S. D.

#### PROMOTION OF GOOD FELLOWSHIP AMONG THE MEDICS

The Entertainment Committee of the Hennepin County Medical Society conducted during the past winter a bridge tournament in the Society's rooms in the Donaldson building.

A series of six matches, one each month, was held. A home-to-home match was held with Olmsted County, the result being an even score. About sixty members participated with an average attendance of about thirty. The boys reported some very enjoyable evenings and are looking forward to the series of 1924-1925.

A number of very choice prizes amounting to somewhat over \$350 were donated by the following firms:

C. Bagstad, Surgical Supplies, a DeZeng ophthalmoscope and otoscope.  
 Donaldson Pharmacy, a game set in mahogany case.  
 Noyes Bros. & Cutler, a Baumanometer.  
 Chas. Anderson, Surgical Supplies, a silver cup.  
 Physicians Exchange, one year's membership.  
 Physicians and Hospital Supply Co., a set of two thermos bottles in a case.  
 Syndicate Bldg. Pharmacy, 100 cigars.  
 A. Kneibel, Cigar Store, 50 cigars.  
 Benson Optical Co., automobile goggles.  
 Loop Garage, \$10.00 in trade.  
 G. Dauphine Tire Co., three \$6.00 purchase certificates. In addition to these donations there were about \$70 in prizes purchased.

The tournament the coming season will be under the chairmanship of Dr. C. A. Borreen. They are now willing to challenge any group in the state.

Under the management of the present committee a very successful golf tournament was held last season. Plans are nearly completed for the 1924 tournament, and a much larger number have signified their intention to play. Two matches have already been arranged with the Olmsted County Society, two with the Ramsey County Society, and two with the Minneapolis District Dental Society. Several more are being started. All members of the profession in Minneapolis are invited to enter this tournament.

—JAMES S. REYNOLDS, M.D.  
 Chairman of the Publicity and  
 Educational Committee.

#### Minneapolis Office Location Offered

Excellent location for physician on a busy corner in Minneapolis is offered. Reception-room with an established dentist. Address 92, care of this office.

#### Office Furniture and Location for Sale

Being obliged to leave Minneapolis on account of health, I will sell my office furniture, with or without lease of office, for \$350. It is in excellent condition and would cost at least \$600. The location is south on Chicago Avenue. Address 99, care of this office.

#### X-Ray Machine for Sale

A Standard oil-transformer, big type x-ray machine, just like new, for sale at a reasonable price. Oil transformer brand new. Address 93, care of this office.

#### Standard X-Ray Machine for Sale

Have an outfit large enough to do all kinds of x-ray work, used four years. Is in A1 condition. Coolidge tube and supplies go with it, tube stand, etc. Address S. E. Reeves, M.D., Eagle Bend, Minn.

#### Small Hospital Equipment for Sale

Complete equipment of a 12-bed hospital is offered for sale. Equipped for general service, surgery, and obstetrics. Address inquiries to P. O. Box 135, Elk River, Minn.

#### Temporary Work Wanted

By a competent physician licensed in Minnesota and North Dakota. Can give the best of references. Ten years experience; available at once. Address 79, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 LaSalle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlraabe. For information call at the office or telephone Main 3220.

#### Physician Wanted in North Dakota

A young man preferred. For Center, N. D., the County-seat of Oliver County. No doctor now in County. Center has three churches and two banks. It is an up-to-date town. As health officer the doctor receives \$25 a month. Address Robert Dunn, Center, N. D.



**Auto-Kamp Trailer for Sale**

Late model with complete equipment, including tent, two full-sized spring beds with mattresses, pillows, ice box, and grocery chest. All in first-class condition. Address Dr. O. A. Aaker, Velva, N. D.

**Fine Opening for a Physician in North Dakota**

An opening for an A1 physician and surgeon in western North Dakota with excellent hospital facilities. Address 103, care of this office.

**Specialist Wanted**

We have a fine opening for an eye, ear, nose, and throat man; also for a man in obstetrics, children's diseases, and internal medicine to join a group, and simply share the waiting-room cost. Town of 30,000, west of the Twin Cities. Address 102, care of this office.

**Minneapolis Office in Fine, New Residential District for Rent**

Some business already established is open for new doctor from present doctor who is leaving the city. Fine rooms, low rent, and splendid location. Offices over a drug-store. Address 95, care of this office.

**Practice for Sale**

Wanted: A physician to take over my practice of eighteen years in a live Minnesota town of 2,500, located sixty miles from the Twin Cities. Purchase of modern residence optional. A good opportunity. Good collections. Am going to specialize. Address 91, care of this office.

**Opening for Young Man**

Correspondence solicited with a recent graduate or preferably a physician with from two to five years experience. Specialty, obstetrics and gynecology. Address 98, care of this office.

**Minnesota Practice for Sale**

Will sell my practice as I am taking up special work. The practice is young yet, but without doing my own surgery I made over \$5,000 last year and collected 94 per cent. Practice ought to run \$7,000 or upwards next year on account of a new railroad being built into the town. Am anxious to close the deal at once. Address 76, care of this office.

**Minnesota Practice for Sale**

In good Southern Minnesota town practice and complete new office equipment for minor surgery, tonsillectomies, and refraction. Ideal office location with young dentist who has x-ray. Waiting room and office girl shared. Many insurance appointments. \$6,000 cash in 1923. Town of 1,000 with good future. Equipment invoices \$1,500. Must have some cash. Give reference, affiliations, etc. Address 94, care of this office.

**Minneapolis Offices for Rent**

Very desirable accommodation for a suburban physician wishing special office hours downtown. Choice of several rooms, whole or part time, in a building exclusively for physicians and dentists. Reception room nurse, laboratory technicians, etc., in attendance. Address 101, care of this office, or call at 821 Besse Building.

# Post Graduate Hospital and Medical School

OF CHICAGO

has given **SPECIAL POST GRADUATE TRAINING**  
TO

**PHYSICIANS and SURGEONS for over THIRTY YEARS**

**General Course for the General Practitioner**  
WITH  
**INTENSIVE SPECIAL COURSES**

as follows:

PHYSICAL DIAGNOSIS  
CHILDREN'S DISEASES  
GYNECOLOGICAL PATHOLOGY  
GYNECOLOGICAL DIAGNOSIS  
EYE, EAR, NOSE AND THROAT  
CYSTOSCOPY and ENDOSCOPY

DERMATOLOGY and SYPHILOLOGY  
STOMACH and RECTAL DISEASES  
EXTERNE SURGICAL ASSISTANTSHIP  
RESIDENT SURGICAL ASSISTANTSHIP  
OPERATIVE SURGERY on CADAVER and DOG  
BLOOD CHEMISTRY and WASSERMANN

**Graded Course in EYE, EAR, NOSE AND THROAT**  
**LABORATORY AND X-RAY TRAINING for PHYSICIANS AND TECHNICIANS**

For further information address

**POST GRADUATE HOSPITAL AND MEDICAL SCHOOL**  
2400 SOUTH DEARBORN STREET

CHICAGO, ILLINOIS

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 12

MINNEAPOLIS, JUNE 15, 1924

Per Copy, 10c  
A Year, \$2.00

## BONE TUMORS OF TRAUMATIC ORIGIN

BY PETER A. NESTOS, B.A., M.D.

MINOT, NORTH DAKOTA

Primary bone tumors are of particular interest to the surgeon because of their varied pathology and the variance in prognosis dependent on such pathology. Sarcoma of bone has been recognized for many years, but opinions still vary as to its proper classification. A great deal of work along this line has recently been done by Borst, Bloodgood, Buerger, and Ewing. Unification seems difficult where one attempts to include histologic details and seat of predilection in the diagnosis. The simpler the classification the more useful it is likely to prove.

It is essential that the surgeon should be able to distinguish before operation between certain types of these tumors, for the degree of malignancy is extremely variable. Sacrificing an extremity may be imperative in one case, but absolutely unjustifiable in another.

For practical purposes it might be well to classify these neoplasms as either malignant or benign, as our chief interest lies in the question, What sort of prognosis can I offer? If the tumor is a round or spindle-cell sarcoma, the prognosis must be guarded or unfavorable, if, on the other hand, it is a giant-cell tumor the outlook is quite different, as it has been shown that this type of tumor is non-malignant and non-metastatic.

*Etiology.*—The etiology of these tumors is not clearly known. The incidence in youth is quite striking in chondroma, osteochondroma, and sarcoma of the malignant type. In giant-cell tumor

there is more of an equal distribution throughout life.

Trauma has been given an important place in the etiology of bony neoplasms by Virchow and many of the older writers. Reinhardt obtained a distinct history of trauma in only 16.6 per cent of his cases. In an analysis of cases from the records of the Massachusetts General Hospital and the Collis P. Huntington Memorial Hospital for the ten-year period ending January 1, 1921, Greenough and others report injury as a likely factor in about 40 per cent of the cases of true sarcoma and 25 per cent in cases of giant-cell sarcoma. Considering that such an amount of material yielded only 43 cases for study it is quite apparent that the individual physician, particularly in the smaller centers, has but a meager chance to get much clinical experience in this field.

These tumors appear with greater frequency in the epiphyseal end of the diaphysis of long bones and the giant-cell growth is rarely seen elsewhere, when one excludes epulis.

Dr. Vitrac, of France, reports two cases of sarcoma in which he regarded trauma as the unquestioned etiology. The first became noticeable three months after injury to the soft tissues of the thigh, and the second one and one-half years after traumatizing the femur.

H. L. Rocher reports nine cases of traumatic periosteoma and shows them to be caused by trauma alone or by trauma followed by infection. Some of these tumors develop insidiously while others grow very rapidly attaining a considerable

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.



size in less than two months.

*Symptoms.*—The symptoms are often conspicuous by their absence. A pathological fracture often occurs before anything is suspected. A tumor may be the only sign of trouble for a long time; however, its size and location may cripple the extremity affected by mechanical interference. Pain is a variable symptom. In central round-cell sarcoma of rapid growth it may be very marked, continuous or intermittent, dull or sharp. In the malignant tumor cachexia develops as the disease progresses.

*Diagnosis.*—The diagnosis, as a rule, has to be made by an analysis of the history, physical findings, radiography, and microscopic pathology. In many instances it is impossible to say to what class the tumor belongs until studied microscopically.

The *x*-ray is invaluable in arriving at an idea of the structural changes of all bone lesions, but

to get all the benefit from the picture it must be interpreted by one of large experience. Osteoma, osteochondroma, sarcoma, and giant-cell tumor have their differentiating points, which radiography will reveal to the expert in many instances and enable him to distinguish from each other and from conditions such as arthritis, osteomyelitis, tuberculosis, syphilis, and metastatic tumor.

*Treatment.*—The treatment in these conditions is largely surgical. There are three methods of procedure: (1) excision, (2) resection, and (3) amputation or disarticulation.

In the benign types excision of the tumor is

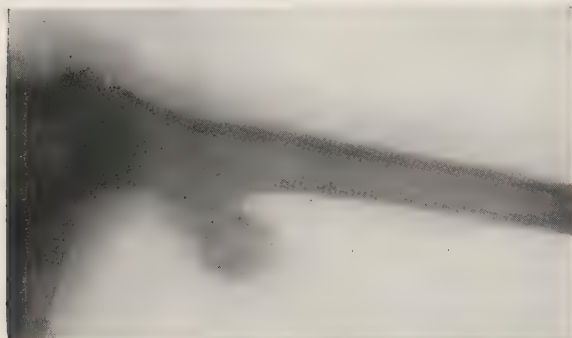


Fig. 1. Osteochondroma of the humerus. To prevent recurrence extirpation should be complete.



Fig. 2. Different view of the tumor shown in Fig. 1.



Fig. 3 Osteochondroma of fibula closely resembling sarcoma clinically and in its macroscopic appearance.

all that is required. One must be sure to remove the entire growth, however, or recurrence is apt to take place. Giant-cell sarcoma is included in this class of cases. In spindle-cell and round-cell sarcoma I believe the consensus of opinion is in favor of amputation or disarticulation. Early diagnosis and treatment might change the surgical procedure to one of conservatism even in definite cases of sarcoma.

Mortality statistics in these cases do not tend to optimism. Three-year cures are not very numerous, but metastasis and early death are.

In the series of cases reported by Greenough and others we have the arbitrary three-year limit exceeded by only 13 per cent.

Early exploration with permission for immediate amputation is safer treatment in a doubtful case than delay. The gross appearance of sarcoma is fairly characteristic but one should always have the diagnosis verified by a competent microscopist. This is shown in case No. 3 submitted herewith and which, by the way, seemed to justify me in writing this paper.

CASE 1.—Girl, aged 10, complaint, swelling of arm near shoulder. History without solicitation brought forth the fact that she had injured the affected part about one month before when she fell while skating. The swelling had been noticed first on the day before consulting me. Examination showed very clearly that the swelling arose from and was part of the humerus as it could be palpated very easily through the overlying deltoid muscle. X-ray study led to a diagnosis of osteoma, and operation for removal was advised and accepted. The tumor was excised, and a diagnosis of osteochondroma was made by the pathologist.

CASE 2.—Boy, aged 15, was hit in the right maxillary area by a baseball. About six months later he began to complain of pain and earache, and observing a certain amount of swelling and distortion of the face he consulted a physician. Malignancy was suspected, but for certain reasons nothing was done for the boy for a period of two months.

At this time some of the growth was removed, but hemorrhage prevented the completion of the work. The microscopic diagnosis of the specimen was spindle-cell sarcoma.

The patient was given 1600 mg. hours of radium. Further treatment was refused. He returned to his home where he died from the ravages of the disease about one year later.

CASE 3.—Boy, aged 8, rolled off the roof of a shed in December, 1921. He limped for a few days because of painful bruising of the upper external right leg. Two months later there was a noticeable swelling at the site of the injury, and the physician who was called pronounced it a fracture of the fibula with excessive callus formation. During the following months the swelling gradually increased in size, and the physician was again consulted. At

this time his suspicion was aroused, and the parents were instructed to bring the boy back should the growth continue to enlarge.

A month later the boy returned and was referred to me for diagnosis and treatment.

Examination: Patient is undernourished and has a pale sallow complexion. General examination is negative throughout. His only complaint is a growth at the upper end of the right leg on the external side and partial loss of function of the right leg and foot. He walks with a pronounced limp, showing weakness of the extensor muscles. On the lateral aspect of the affected leg corresponding to the upper end of the fibula is a fusiform swelling. This swelling is of firm consistency and free from subjective symptoms. It is not painful on pressure. There are several dilated veins running across its surface. Radiography showed the tumor very nicely, and I made a diagnosis of probable sarcoma. Because of the location of the tumor and the inability to make a positive diagnosis I decided to do a resection.

Operation: The tumor was exposed by a longitudinal incision. The bellies of the gastrocnemius and peroneus longus were thinned out into fan-like proportions over the tumor surface, and the anterior tibial nerve was intimately adherent to the tumor where it was stretched over it. The neoplasm was freed carefully of these structures, and the upper four inches of the fibula with its tumor was resected.

The pathological diagnosis follows:

The section is composed of different tissues:

1. Hyaline cartilage with an irregular arrangement of its cells, which appear of different sizes, large and small.
2. A mesh of trabeculae of connective tissue filled up by red cells, with some attempts at the formation of true blood vessels.
3. In some parts the cartilage has calcified with the abnormal formation of bone.

The new growth is a hyperplasia of inflammatory origin. But the overgrowth was enormous, and it has acquired an independence as is the case in tumors. It was so marked that its macroscopical appearance was that of an osteosarcoma; but microscopical examination shows the neoformation is similar to osteochondroma; that is to say, an abnormal and irregular formation of cartilage with a tendency towards calcification, without possessing the characteristics of malignancy.

#### REFERENCES

- Rocher, H. L.: Traumatic Periosteoma. *J. de. med. de Bordeaux*, August, 1917.  
 Greenough, R. B., and others: Bone Sarcoma. *Journal of Orthopedic Surgery*, November, 1921.  
 Tumors of Traumatic Origin: *Jour. of the A. M. A.*, June 29, 1918, p. 2044.  
 Simmons, C. C.: Bone Tumors—Bryant and Buck.

#### DISCUSSION

DR. GEORGE M. STEELE (Oshkosh, Wis.): I was extremely interested in a case of this kind that happened in the service of the Soo Line. This case, which occurred three years ago, went on file in Chicago for an injured ankle. The patient was referred directly for first care to Drs. Wiley and Smith, of Fond du Lac. The only complaint made



was in regard to the injured ankle, and nothing else was spoken of for three weeks. There was then discovered an enlargement of one of the bones of the foot, the second or third metatarsal. Dr. Wiley made an x-ray of the foot, the trouble, seemingly, developing in the metatarsus. There was found a growth with various cysts without, so far as we could discover, the departure of any single cell beyond its own normal covering. The case went on for some time and was finally sent to Dr. Connell, of Oshkosh, who referred it to my office. I made an x-ray negative from both angles, and they corresponded exactly with those previously made at Fond du Lac. I thought, as did Dr. Connell, that it was one of the most typical cases of cystic degeneration of bone I had ever seen. There was apparently nothing that indicated malignancy. The case then went into other hands at Fond du Lac, and an examination of this growth was made. The case or a specimen was sent to Chicago, and the report was made that it was a large-cell sarcoma. There is where the large-cell sarcoma comes in, to occasion many times a great deal of trouble, it ought not to, and the needless sacrifice of limbs. I was surprised that an amputation was done following the diagnosis of large-cell sarcoma.

I do not know whether the first amputation was simply of the foot or higher up, but there was a secondary amputation of the leg.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): The essayist has gone into detail in reporting a case with microscopic findings of osteochondroma, and I desire to make a few remarks relative to chondroma and its relation to osteoma.

In the histological classification chondroma and also osteoma are grouped in the connective-tissue type, in other words, among the benign tumors and not among the malignant group as in epithelial group.

Cartilaginous tumors are divided into chondroma and echondroma, the chondroma originating from transitory cartilage or from tissues not normally containing cartilage, such as respiratory tract, breast or uterus, and the echondroma originating from tissues normally containing cartilage, such as the costochondral junctions. Cartilage is essentially embryonal and transitory tissue, and chondromatous overgrowth occurs in early life and about puberty. Many cartilaginous growths are located in the growing ends of bones and reveal a distinct tendency toward standstill and regression at the period when the development of the osseous skeleton is complete. The chief growth of the skeleton in the upper extremity is in the upper epiphysis of the humerus and the lower epiphyses of the radius and ulna; the growth in the lower end of the humerus and the upper ends of the radius and ulna add but little to the length of the upper extremity. The reverse holds true in the lower extremity as the growth is mainly in the lower epiphysis of the femur and the upper epiphyses of the tibia and fibula. As a corollary, therefore, we would naturally expect a predilection for cartilaginous and osseous enlargement in the upper end of the humerus and the lower ends of the radius and ulna and in the lower extremity of the femur and upper extremities of the tibia and

fibula. The knee joint is prolific as to the frequent encounter of echondromas, the result of chronic arthritis which might have incited an osteochondritis. The knee joint is exposed and is a frequent cause of trauma in mechanics, and joint-mice are a prolific source of disability.

The periosteum may be likened to the perichondrium, and trauma to pre-existing cartilage may be the inciting cause of chondrogenesis. In other words, trauma and inflammation are frequent causes of echondroma about the knee joint. Chondromata are sometimes encountered in the diaphysis of long bones, when we must assume that a local or general predisposition exists, traceable to various embryonic disturbances. Trauma to long bones may be the cause of osteophytes and in some instances, depending on misplaced islands of cartilage, may be the cause of chondrophytes. The development of chondrophytes has been demonstrated histologically to originate from islands of superfluous cartilage in the periosteum.

In studying this subject from what pathologists have revealed to us one must assume that osteoma and echondroma have a metaplastic relationship and it mainly depends upon whether the pre-existing cartilage cells are traumatized, stimulating the chondroblasts to activity, resulting in chondroma, or whether the periosteum is traumatized, stimulating the osteoblasts to activity, resulting in osteoma. In all skeletal tumor formations we must assume that embryonic disturbances exist and they are more apt to be incited to activity from birth up to the time of puberty.

We speak about malignant cartilaginous tumors,—chondrosarcomas. When the chondroma originates in the medulla of a long bone the growth enlarges the bone and assumes a thickened spindle form at the expense of the compact part of bone,—pressure osteoporosis. This may go on even to complete absorption and perforation of the diaphysis of the long bone, destroying the epiphysis and proving malignant from mechanical factors, and we might have what is ordinarily known as a pathological fracture. Chondromas have an invasive propensity for large veins, resulting in extensive intravascular growths and proving malignant in this manner. Infiltrating cartilaginous tumors may be likened to sarcomatous extension, where the very cellular peripheral portion invades surrounding tissues and produces nodules of cartilage which may properly be called chondrosarcomas.

Therefore, in studying this subject of osteochondroma (a tumor composed of bony and cartilaginous elements) one must bear in mind that the large majority of cartilaginous growths undergo metaplasia. When the transformation of one tissue into another takes place, as of cartilage into bone, it remains a debatable question as to whether to call the growth cartilage, cartilage and bone, or bone, and the report of neoplasms is only of value when a surgeon works in conjunction with a pathologist of undisputed reputation.

DR. CARL VON NEUPERT, JR. (Stevens Point, Wis.): It might be well to take a Wassermann in some of these cases of apparent bone tumor. A few years ago I saw a man who had a swelling on one of his

shin bones which for several months had been treated by physicians, and an operation advised. He presented the history of shin-bone disease. On questioning him a little more closely he admitted that he had had syphilitic infection eight years before. I sent to the laboratory a specimen of his blood, and a negative report came back. Being suspicious, I put him on antisyphilitic treatment and the tumor disappeared in very short order. In cases of similar character it has repeatedly occurred that while the first Wassermann test was negative, the second has been positive. Therefore in doubtful cases of bone tumor I believe a Wassermann test should be made.

DR. HERBERT H. LEIBOLD (Parkers Prairie, Minn.): Bone tumors of traumatic origin, I feel sure, do occur. We do not see them very often, but we must always be on our guard in order to detect them. I have seen three traumatic cases in which the tumor that developed was unquestionably sarcoma because they were carefully diagnosed and operated on, and there was no question about it.

The first case was that of a man whose eye was injured by the penetration of a foreign body. Some time later it became necessary to remove the eye. I told him to come back in a short time, as we were going to do a Mules' operation and fit him with an artificial eye. Three months afterwards a swelling developed in the back part of the orbit. I sent him back to Dr. Spratt, of Minneapolis, who excised a portion of the growth and found that it involved the upper part of the bony plate of the orbit. The diagnosis was round-cell sarcoma. They excised it as thoroughly as they could and sent the patient back with instructions to treat him with Coley's fluid. The patient improved under this treatment, the enlargement disappeared, and he remained well for one year. He stopped taking the treatment of Coley's fluid in spite of advice, and later died of metastases in the lungs.

Another case was that of a young lady of twenty-two, who had made a misstep and was lame for a month. Then it was claimed that she had sustained another injury from the result of which a swelling developed. I saw her three months after the first injury. I thought she had a neoplasm and sent her away for x-ray examination. Three physicians examined her, and they decided that the trouble arose from a tuberculous condition of the ankle joint. They operated, removed some of the tissue, which was submitted to microscopical examination, and then failed to make a diagnosis. The wound apparently healed, and she came back with a lot of granulations. It was treated with silver nitrate, and the wound healed, still she had an enlarged ankle and was unable to walk on it. All three men advised her to have an amputation. She went to the city again and saw about twelve prominent men, all of whom advised her to have a frozen section made, which was done, and they found it was sarcomatous and advised amputation. She refused. I took her to Dr. Gillette, of St. Paul, who stated that through all his experience with sarcomatous growths he had found that the ankle joint is the place where one most frequently finds giant-cell sarcoma. He said that in this case of giant-cell sarcoma he

doubted whether it would be necessary to remove the leg, but he advised that a section be made, and, if the tumor was found to be any other kind of sarcoma, the leg ought to be amputated. She refused amputation. This was five years ago. The trouble has practically disappeared and the patient can walk on the foot to-day.

The third case occurred recently. In May, 1922, a child nine years of age, was injured by falling on the hip, was lame four days and stayed out of school, then tried to go to school, but became lame again and had to stay home. I saw the patient six weeks later when she had some enlargement of right hip joint. The enlargement increased, and she had a temperature of 103°-104° all the time. One would not expect to find this elevation of temperature in a case of sarcoma unless it was breaking down. It looked like a case of osteomyelitis. After a week the temperature went down, but the child was not getting along as well as she should and they took her to a chiropractor who treated her for a week, then brought her back. They thought it was a case of tuberculosis and sent her to a hospital in St. Paul where a diagnosis of sarcoma was made. The child died and post-mortem revealed a round-cell sarcoma.

The only case of the kind I had previously seen was in Philadelphia while a senior in Jefferson Medical College. The hip joint had become enormously enlarged from sarcoma. Dr. DaCosta told us that many years ago, before the days of antiseptics, they sometimes had a cure of this condition. After operating on these cases and getting infection, at times they would have a miraculous cure, and because of this experience Dr. Coley invented his fluid. In the case referred to they removed the greater part of the hip and treated the patient with Coley's fluid, and she recovered. (Coley's fluid: A mixture of sterilized cultures of streptococcus erysipielatis and baccillus prodigiosus, in the proportion of 100 to 30, with 20 of glycerine.)

DR. ALBERT E. BOOTH (Minneapolis, Minn.): In cases of this kind where the question of diagnosis is so important it has seemed to me that anything that will help us in arriving at a definite diagnosis is of real value. The patient is entitled to intensification of the idea of complete study, beginning with blood examination and going on down the line, including a complete x-ray study. In metastasis any operative procedure is not indicated, but is rather meddlesome. After we get all through with our study I think we must take into account the fact that human frailty enters into the matter, therefore we must go back over the ground and see if we have not somewhere made an error. That very forcibly came to me some time ago in going over what I had first supposed to be a sarcoma of the distal end of the femur, but which proved to be a cyst and where a little more careful and continued study convinced me that the conservative, rather than the radical, treatment was indicated. Almost three and one-half years have elapsed since the simple removal of the cyst, and the patient has remained well. On the other hand, it seems to me that all the malignant cases are so unsatisfactory. All patients I have operated on except one have passed on.



The point I particularly want to make is that in our work for the last year and one-half we have made a careful routine study of every case of malignancy. Up to date we have thus studied 27 cases, 24 of these carcinoma, and 3 sarcoma of the spindle-cell variety. We have found that in all of them the percentage of lobulated polymorphonuclear leukocytes was above 29. We have found this factor in some other conditions notably indiscretion in diet and particularly after the indiscrete use of intoxicants. However, in these cases of indiscrete diet or alcoholism the high percentage of lobulated polymorphonuclear leukocytes soon disappeared after the correction of the fault, while in the malignant tumor cases it remained.

I think we ought to carefully x-ray the chest in every case of tumor of the extremities, thoroughly searching for metastases before proceeding to radical surgery.

DR. JOHN V. R. LYMAN (Eau Claire, Wis.): I have three cases in mind:

1. A girl aged 15, while playing at school, was thrown down and trampled on by another girl immediately behind her. A tumor developed at the lower end of the femur, which proved to be sarcoma. Amputation was done early, and that patient is still alive and is now perhaps thirty years of age.

2. A logger in the woods was struck above the knee by a stick being thrown from a chain employed in pulling up logs. Sarcoma developed, amputation was made, and a year and a half later sarcoma of the lung developed, and death followed.

3. A man, aged 24, was struck in the upper portion of the thigh, and later a tumor developed which proved to be sarcoma. In this case the location was on the anterior portion of the thigh just below Poupart's ligament and involved Scarpa's triangle. As amputation at the hip joint was not feasible,

radium was tried and for a time seemed to be of some benefit. Later on the tumor broke down and became a suppurating mass, and the man died.

Two years ago I was called in consultation to see a case that was supposed to be a sarcoma developing from an injury to the femur. The surgeon intended to amputate at the hip. I advised against amputation, recommending that first an incision be made down on the tissues involved, a specimen removed and taken to a pathologist, and, if it proved to be sarcoma, to then amputate. The pathologist reported that it was not a sarcoma, but he did not know what it was. Seven inches of the femur were removed, and a tibial transplant was put in. This never united. The patient had seven subsequent operations, the leg was of no benefit, and the surgeon was sued. The case was thrown out of court.

I report this case because it is of interest to all of us. In case of any bone tumor developing after trauma, a specimen should be examined whenever possible by a pathologist to find out the nature of the tumor before amputation.

DR. NESTOS (closing): From the standpoint of the x-ray the differential point lies in the fact that usually a sarcoma will show a trabeculation of the area involved, while a degenerative process like a cyst shows no such trabeculation.

In regard to the report of cases by Dr. Leibold I want to say that I do not think there is any question but that definite sarcoma is definitely surgical; however, frequently we find inoperable cases, and they should be given the benefit of treatment with Coley's fluid. Some authorities have reported using Coley's fluid fairly extensively, but without any benefit. Dr. Coley reports favorable results in a number of cases. Dr. Coley used x-ray treatment in a series of 74 cases in only 4 of which benefit seemed to be derived, and within a year there was recurrence in 3 of these cases.

## CRUSHING INJURIES OF THE LIVER

BY MARTIN W. ROAN, M.D., F.A.C.S.

BISMARCK, NORTH DAKOTA

It is the intention of this paper to treat only injuries to the liver resulting in rupture, due to a blunt crushing force. This class of injuries is not uncommon and is frequently overlooked because of a hasty superficial examination and a too great readiness to put the patient to bed and await developments. A closer study of the history of the case, especially a case in which the injury had been due to crushing between two heavy objects, such as box cars, automobiles, etc., a more detailed physical examination, and consideration of the symptoms would reveal the true character of the injury. It is hoped that

with the newer x-ray appliances, such as the intensifying screen and the Bucky-Potter diaphragm, the true condition of a contused or crushed liver can be more readily determined.

### SUBJECTIVE SYMPTOMS

The chief symptoms are those of shock, pain, and tenderness in the right hypochondrium, nausea with vomiting, dull headaches, and inability to take nourishment. The pain is colicky in character and comes on at intervals of every two or three hours. The abdomen feels tense and hard, as if it might break. The mind is usually quite clear.

\*Presented before the fifteenth annual meeting of the Soo Surgical Association held at Minot, North Dakota.

## OBJECTIVE SYMPTOMS

The temperature, when the patient is seen early, is subnormal, showing that the patient is in severe shock; and the skin is cold and clammy. The expression is anxious; the abdomen is tense and usually greatly distended. At first the point of greatest tenderness is over the area of injury; later it is diffused over the abdomen. There is more or less discoloration of the skin, and the conjunctiva is injected with bile pigment. If not seen until two or three days after the injury we may find a general jaundice present. The pulse varies with the type of the case and the severity of the hemorrhage. If absorption of bile into the blood has taken place, the pulse will be slow (bradycardia), and the blood pressure about normal. A second type shows rapid pulse and falling blood pressure—95 to 100 systolic, 59 to 60 diastolic—and extreme pallor and thirst, which no doubt are due to hemorrhage. The patient complains of a tired feeling, more than any particular train of symptoms.

## DIAGNOSIS

The diagnosis is based upon the history of the case, symptoms, and a careful physical examination. The history must be gone into in detail as to the approximate amount of pressure and the size of the crushing force. If rupture is complete we get localized pain in the region of the injury, which does not usually radiate, some discoloration, marked rigidity, signs of intra-abdominal bleeding, pallor, thirst, weak and rapid pulse, and falling blood pressure. If the patient is not seen until twenty-four to forty-eight hours after the injury, we get a different picture. The pain is more diffuse and may radiate to the right shoulder. Abdominal distention is greater. The whole abdomen will be bloated and tympanitic, and may resemble acute peritonitis, but no localized tenderness will be found. With the combined symptoms, history, and physical examination, diagnosis as to the injury can readily be made, but the extent of the injury or rupture cannot be determined until the abdomen is opened and a direct inspection made.

## TREATMENT

What should be done when one is called to a case that has been severely crushed? If, after a careful consideration of the history and the physical findings, one is satisfied that the liver is ruptured, one should not delay in getting the patient to a place where proper treatment can be given. If the patient's condition will warrant

moving, a hospital is the proper place. If, however, the condition calls for immediate action, large adhesive strips should be used in order to bind the liver tightly against the upper abdominal wall, which is supported by the ribs. In addition to this, a large muslin binder may be used to exert further pressure, and the necessary supportive treatment should be given. As soon as possible the patient must be moved to a hospital.

Crushing or rupture of the liver is so serious an accident and the danger of fatal hemorrhage and peritonitis are so great that an operation must be done as early as possible. When the abdomen is opened it will be found full of free blood. A systematic search for the wound should be made, and a large gauze pack should be used to wall off the abdomen from the normal side. The liver is extremely friable, and it is easy to increase the rent by using force, therefore it is necessary to pack gently and treat it with great consideration. After the hemorrhage has been checked by pressure and all the free blood in the abdomen sponged out, one must repair the damage. I have found a large round full-curved needle without a cutting edge and No. 1 thirty-day chromic catgut best suited for this purpose. Four through-and-through sutures will usually be sufficient, but should they have a tendency to tear out, they may be reinforced by two longitudinal sutures of plain No. 2 catgut. After suturing the rent the abdomen should be thoroughly sponged out and closed. If the loss of blood has been great, transfusion may be done. However, if the hemorrhage has been to that extent, the patient usually dies before help can be obtained. Injections of horse serum and styptics have been of little value in the cases I have had.

After-treatment: The patient should be placed in Fowler's position. The bed should be kept warm with hot water bottles. Hypodermoclysis of normal saline solution, 500 to 800 c.c. every forty-eight to seventy-two hours, should be used. Proctoclysis of sodium bicarbonate solution, gr. 5 to the ounce, should be given continuously for the first two or three days, as it will help to overcome the acidosis. Plenty of water by mouth should be given. The diet should be liquid and nutritious for the first week. The patient should be kept in bed for at least forty days, because when the stitches absorb and let loose there likely may be additional hemorrhage, which must be taken care of by the coagulating power of the blood. These hemorrhages will excite the



heart and cause some gastric pain, but they usually clear up in a day or two.

CASE 1.—Final diagnosis: Crushed and ruptured liver. Working diagnosis: fracture of ribs with crushed liver and hemorrhage.

Patient admitted September 8, 1917, aged 28 years. Male, married, German.

Came for relief of pain and shock. The patient stated that he has had measles, smallpox, chickenpox, and typhoid; was sick for five weeks with typhoid but not very ill; he has never had any other serious sickness; has always worked hard, and for the past six years has been a brakeman; does not use liquor nor tobacco; is five feet ten inches tall, and weighs 175 pounds.

On September 5, 1917, while coupling grain cars, the patient slipped on a piece of board and was hit by the moving car in such a manner as to be thrown against the car, which they were going to couple. He was rendered unconscious for two hours; was moved to a rooming house, where a physician rendered first aid by putting a tight binder about the upper abdomen and applying ice. Strychnine, whiskey, etc., were given. The doctor did not think that the patient's condition warranted moving and therefore kept him at the rooming house for three days. The patient was then moved to St. Alexius Hospital.

When I first saw him he was pale, in a state of stupor, and seemed to be suffering from a toxemia of some sort. His abdomen was greatly distended, skin showed marked jaundice, great tenderness was present over the right iliac fossa; palpation over the liver caused pain which radiated to the right shoulder; bowels were constipated; he had clay-colored stools with a small amount of blood; and the urine was dark in color.

Physical examination: Head and chest negative; pulse 56; temperature, 100°; blood pressure, systolic, 98; diastolic, 56.

Laboratory findings: x-ray, negative; urine, sp. gr., 1028; albumin, trace; sugar, negative; no pus, no casts, or bile pigment.

Blood: red cells, 3,600,000; leukocytes, 14,000; hemoglobin, 68 per cent.

September 9, 1917, operation: Bevan's incision for gall-bladder.

Anesthetic, ether, atropine, gr. 1/150; morphine, gr. 1/6.

Condition found: The left lobe of the liver was crushed. The right lobe was ruptured for a distance of about four inches. The abdomen was full of free blood. The rupture in the liver was packed with omentum, which showed that nature was trying to take care of it in that way. Around the edge of the rent the liver was still bleeding. The transverse colon and upper viscera were bile stained and congested.

What was done: The omentum was removed from the rent in the liver, which then started to bleed profusely. The liver edges were brought together and sutured with plain catgut No. 2, using a large full-curved needle without cutting edge. Three through-and-through sutures were used. The wound was packed with iodoform gauze. The abdomen was

closed, leaving the iodoform drain in place. Patient's condition during operation was good; pulse, 120; respiration, 32. After he returned to bed he was given sterile water by gastric lavage; by hypodermoclysis, normal saline solution 500 c.c.; an hypodermic of five drops of 1-1000 adrenalin chloride solution; Murphy's drip of sodium bicarbonate solution was begun two hours later.

September 10, 1917, 5 A. M.: Pulse, 128, temperature, 102.5°; and respiration, 36. He complained of great thirst; had considerable pain; morphine, 1/8 gr. with 1/150 gr. of atropine was given by mouth; abdomen was distended. He felt nauseated, but did not vomit and seemed very weak.

September 11: Patient slept at intervals from one to two hours. When changed, the dressings were bile stained and contained considerable amount of blood, but no pus or abdominal odor. The patient had little pain. He was given a saline enema with good result, expelling blood-stained and clay-colored stool with mucus. He took little nourishment. Pulse, 120; temperature, 101°; respiration, 28.

September 12: Patient slept for three hours and was very quiet; took little nourishment; pulse, 120; temperature 100.5°; respiration, 28; blood pressure, systolic, 100; diastolic, 60. Dressings were changed, and the iodoform gauze drain and pack were removed and replaced by a rubber-tissue drain. The dressings were bile and blood stained, but no pus was present. Progress from this date was satisfactory, but slow.

November 30: Discharged. Patient stated that he weighed about fifteen pounds less than before the accident, but felt good and slept well.

June 11, 1918: He wrote from Oregon saying that he was alright and wanted a letter as to his condition, and as to what was found during the operation, as he desired to join the army. No further report has been received.

CASE 2.—Final diagnosis: Ruptured liver. Working diagnosis: Injury of liver sufficient to cause hemorrhage. Admitted: July 11, 1921, aged 16 years, male, Russian, a farmer.

Came for relief of pain, abdominal distention, and shock. Patient stated that he had had the usual diseases of childhood, but not scarlet fever. Had never had any serious illness.

The patient stated that two days ago, while doing road work, a team of horses starting unexpectedly threw him against a scraper, which caused injuries to his right side and upper abdomen. He was unable to get up for two hours; was then loaded into a wagon and hauled three miles. A physician was called. He made a physical examination and diagnosed an injury to the abdominal viscera. The patient was brought to St. Alexius Hospital, where the examination was completed and a working diagnosis of injury to the liver with hemorrhage was made forty-eight hours after the accident.

Physical examination: pulse, 120; respiration 28; temperature 99°; blood pressure, systolic, 122; diastolic, 88; chest and head, negative; abdomen, distended and tenderness present over the whole right abdomen; the point of greatest tenderness was over the lower border of the liver.

Laboratory findings: urine, sp. gr., 1030; acid;

albumin, trace; sugar, negative; bile, pus. The microscope showed both hyaline and granular casts, blood, but no pus or abdominal odor. The patient Blood: red cells, 3,400,000; leukocytes, 18,000; hemoglobin, 70 per cent.

July 11, 1921, operation: Bevan incision for gall-bladder.

Anesthetic: ether, plus morphine, gr. 1/6 and atropine gr. 1/50.

What was found: The liver showed an oblique rupture about six inches long in the right lobe, about four inches from the free border of the liver. The rupture extended from without inward to gall-bladder. The abdomen was filled with clotted blood. The upper abdomen, intestines, and liver were stained with bile. The rupture was found partially filled with omentum.

What was done: The liver edges were brought together, sutured with four through and through sutures and packed with gauze. A round-curved needle was used with No. 1 chromic catgut. The abdomen was closed, leaving one cigarette drain down to the rupture. Hypodermoclysis of 800 c.c. normal saline solution and gastric lavage were given, during the anesthesia the pulse went up to 160, and the respiration to 30. Two hours later the patient was given adrenalin chloride hypodermically, minims 7.

July 12, 1921, 5 A. M.: Pulse, 136; temperature, 102°. After operation the patient had a very stormy period complaining of a great deal of pain. He was given 1/6 gr. of morphine with 1/300 gr. of atropine. Continuous proctoclysis of sodium bicarbonate solution was used. The abdomen was greatly distended. The patient was nauseated and vomited at intervals, but in general, condition was good.

July 13, 1921: Patient slept for two and one-half hours, but was still in a serious condition; pulse, 130; respiration, 24; temperature, 101.4°; was unable to void; complained of severe pains in the abdomen. Proctoclysis was expelled. He was now given strychnine sulphate, gr. 1/60 hypodermically every three hours. A soap suds enema returned with much flatus.

July 14, 1921: Temperature, 102°; pulse, 130; respiration, 24; blood pressure, systolic, 112; diastolic, 74; slept eight hours during the past twenty-four hours and did not complain of much pain. The dressings when changed contained blood, and showed bile stains from day to day until the wound was healed. There was a gradual improvement in the condition from July 14 to July 20. The patient was on a soft diet during this time. On July 20 the pulse went up again but gradually returned to normal. On July 28 the pulse again went up for two days, but the abdominal symptoms were not so severe.

The post-operative hemorrhages were due to the absorption and the giving away of the large through-and-through catgut sutures, and could have been avoided by the use of No. 2 thirty-day chromic catgut. From July 28 to September 9, 1921, progress was normal. He was discharged September 9, 1921, but was kept under observation. He stated that he was twelve pounds lighter than before he was hurt, and that his appetite was good and he slept well.

He was not allowed to do any work for three months.

October 10, 1921. Follow-up record: The patient reported and upon examination, no tenderness, distention, or jaundice could be found. The bowels were regular, color normal, the appetite was good, and he slept well, but had not returned to work.

DR. CARL VON NEUPERT, JR. (Stevens Point, Wis.): Immediate operation after the diagnosis is established seems to be the only thing that can be of any benefit. Suturing the rent in the liver, when feasible, can be done with a degree of satisfaction. Where the rent is so situated that the suture cannot be made I presume that packing is the only thing left to do. In a case of contusion where there is slow bleeding one may have to wait a few days in order to establish a diagnosis. If there is any reasonable doubt I would prefer to open and explore rather than to wait unreasonably long in order to establish the diagnosis.

In regard to the suture material: Catgut absorbs rather quickly, and in cases where one desires to have the suture remain longer than would be the case in the ordinary abdominal operations I would prefer to use chromic catgut suture rather than plain catgut. In passing the sutures through the liver tissue one need not draw them very tightly because the blood pressure is low, and it does not require much tension to control hemorrhage of the liver. I use a non-cutting large curved needle and take one deep suture alternating with superficial suture. In that way we obliterate the dead spaces and secure reasonable coaptation of the surface of the liver.

DR. THEODOR BRATRUD (Warren, Minn.): The essayist laid stress on the great amount of force required to rupture the liver. I have seen two cases of extensive rupture of the liver from a very small amount of force. One man was struck by a baseball and sustained a rupture of the liver extending three inches into the liver. Another man fell at a distance of three feet across a scantling and had a ruptured liver. The one symptom in rupture of the liver, and the first one, is that of hemorrhage, and the abdomen should be explored in any case after injury where we believe we have hemorrhage, that is exploration should be done before local signs of liver injury appear. The signs of hemorrhage, in my opinion, are sufficiently severe to warrant exploration before we get signs of bile leakage which is manifested by jaundice. As a rule, patients with rupture of the liver die before bile absorption takes place, as indicated by jaundice.

DR. LYMAN R. CRITCHFIELD (Kenmare, N. D.): I want to ask the essayist what advice he would give in a case in which the patient is practically pulseless when we get him and does not come back. One year ago a boy was rolled on by a horse, and I never was able to get a radial pulse although he lived eighteen hours. I did not open the abdomen because he was in such condition that this measure did not seem to be justified.

DR. BURTON C. FORD (Minneapolis, Minn.): I had occasion to see just one case following a gastro-enterostomy, caused by a man jumping out of fifth



story window of the hospital. He sustained a rupture of the liver without any fracture of bones. As he was in marked shock we did not attempt to do anything. He died two and one half hours after rupture of the liver occurred.

DR. ROAN (closing): Dr. von Neupert referred to the suture material to be used and also to the method of suturing. In the second case cited by me, the boy 16 years of age, two definite hemorrhages resulted from absorption of the catgut. After the first catgut gave way his condition was serious, and we thought we were going to lose him. In suturing the liver, which is, as we all know, very friable, if we do not put the horizontal sutures too deep, but have them placed superficially, I do not believe we shall have any trouble. Eisendrath col-

lected a series of 37 cases that had been operated on and the liver sutured, and in this number he found a mortality of 40.5 per cent; in other words, 22 patients lived. He operated on two cases, and both died in two or three days of general peritonitis.

Dr. Critchfield asked about the patient who comes in practically pulseless. In the case cited by him the boy evidently was in extreme shock. It is a very difficult matter to know what to do with these cases, but the supportive treatment for shock is, I think, indicated: Apply hot water bottles, get the patient to bed, and keep him warm, give him hypodermoclysis if we can, but, above all, keep him warm, and elevate his hips. Injection of various agents, as strychnine, I have never seen do any good.

## IODINE AS A CAUSE OF HYPERTHYROIDISM

WITH A REPORT OF EIGHTEEN CASES

By ARNOLD S. JACKSON, M.D.

Section on Surgery, Jackson Clinic

MADISON, WISCONSIN

Iodine has been employed for thousands of years in the treatment of goiter. The ancient Greeks knew that seaweed containing iodine was beneficial in the treatment of enlargements of the thyroid gland. For many generations of medical science the idea of treating goiter with iodine has held the weight of authority, and it was not until Kocher aroused new interest in the thyroid that the old empiric principles of treatment were first doubted. In 1895 Rilliet, of Geneva, called attention to a condition resulting in certain persons receiving iodine for goiter. He believed it to be an idiosyncrasy and designated it "constitutional iodism." Because in many ways it resembled exophthalmic goiter or Basedow's disease, Breuer called it "iodine-Basedow," and it has since generally been termed by that name.

Kocher repeatedly called attention to the symptoms accompanying this peculiar condition and as many times warned against it; tremor, tachycardia, palpitation, nervousness, loss in weight and strength, and in some instances gastro-intestinal crises were characteristic. Many others prominent in the study of diseases of the thyroid have remarked the relationship of onset of hyperthyroidism to the administration of iodine to persons with goiter. In spite of the evidence and the extensive literature on the subject, there are more cases of induced hyperthyroidism in this country to-day than at any time during the

past hundred years. I make this statement without fear of contradiction since the facts are self-evident. There are physicians who claim to be specialists in diseases of the ear, nose, and throat who boast that for ten, fifteen, or twenty years they have applied with remarkable success a salve containing iodine to the necks of goitrous patients. There are those who would specialize in the eye, but cannot resist the temptation occasionally to add a few drops of tincture of iodine to sweeten their patients' morning drink and drive within the disturbing adenoma. The obstetrician knows that during menstruation and pregnancy the thyroid is overworked, and he too adds his iodine pills. However, the specialists bear only a small burden of the responsibility. The general practitioner, the internist, and the surgeon are responsible for the great majority of toxic goiters that develop through the promiscuous use of iodine. Finally, the quacks and patent medicine concerns, for whom the patient has only a mercenary appeal, have done their share to swell the ranks of patients with iodine-Basedow.

Undoubtedly, ignorance of the danger of too ardent iodine therapy in the treatment of goiter is the principal excuse for the majority of physicians who err in this respect; yet I cannot conceive of a wide-awake physician going on year after year enriching the coffers of the drug concerns when his results must be evident to every-

one. In the short series of cases reported here there are four patients treated by the same physician within one year.

To-day every patient who has a goiter comes to the physician with hopes of a cure by iodine. The newspapers and magazines are so full of articles on iodine and goiter that the laity have come to consider one a cure for the other. The brilliant work of Marine and Kimball in the prevention of goiter in the school children of Cleveland and Akron has had unfortunately, its disastrous as well as its good effect. I recently heard of a woman public health official who, in speaking before a large number of women, advocated iodine as a cure for all forms of goiter. There have been reports in the newspapers that certain cities, New York, for example, contemplate dumping large quantities of iodine into the drinking water with an idea of preventing goiter. In fact, the laity have been so well educated that I now almost daily see patients who have dispensed with the family physician and order iodine as they would order so much salt or sugar.

Two years ago if one had advocated the use of iodine in the treatment of exophthalmic goiter, he would have won scant support. Now Plummer and others have proved that almost the same benefit may be derived from the pre-operative administration of Lugol's solution of iodine as is obtained by a ligation. Under Plummer's direction I have given thyroxin to patients with severe cases of exophthalmic goiter, not without considerable doubt and speculation. I have been surprised to observe not only that no harmful effects ensued but that improvement took place in some instances, although not proportional to that obtainable with Lugol's solution.

The administration of iodine is of undoubted value in the prevention and cure of colloid goiter, that form of enlargement of the thyroid gland that appears shortly before or during the age of puberty and which is often called an adolescent or physiologic enlargement of the gland. Iodine has proved to be a specific in this disease. We know that the thyroid enlarges at puberty, since in the process of anabolism the demand for thyroxin is so excessive that an incomplete product, colloid, is deposited by the gland. In certain localities, such as the states bordering the Atlantic Coast and the Gulf of Mexico, iodine has been deposited by the glaciers in sufficient amounts to supply the drinking water with enough iodine to make up for this deficit. Consequently, in those localities the incidence of colloid goiter is very low, and adenomas of the thyroid

are of infrequent occurrence. Simple adenoma is one form of endemic goiter, which, on account of its similar etiology, closely follows the regional distribution of colloid goiter. The incidence of adenoma of the thyroid is decreased by the prophylactic treatment of colloid goiter. Apparently, adenomas frequently start in neglected colloid goiters as a form of compensatory development.

In the Northwest (Washington, Oregon, and Idaho) and in the Great Lakes region (Michigan, Wisconsin, Illinois, Minnesota, Ohio, and Indiana) the glaciers deposited iodine in the soil in only meagre quantities, and consequently there is a high percentage of colloid goiter in these states. I have found that 65 per cent of the girls who come to the Clinic between the ages of twelve and twenty show evidence of a colloid deposit by the thyroid gland. Bardeen states that fully 60 per cent of the girls entering the University of Wisconsin have enlarged thyroids.

Our modern system of education is, I believe, another factor in the abnormally high incidence of goiter in young women. There is no definite proof why adenomas are five times as common in women as in men. The change at adolescence in girls, involving the mammary glands, the uterus and ovaries, and the function of menstruation, is more rapid and places a greater tax on the body tissues than does the change that occurs in boys. There is an acute excessive demand on the thyroid gland for thyroxin, and, instead of giving the body every opportunity to store up thyroxin, our schools are subjecting the girls practically to the same mental and physical demands that are made on the boys. I am strongly opposed to excessive physical exercise in gymnasiums for girls, and I believe that at puberty only the lighter forms of outdoor exercises are required. Another factor that calls for an increased supply of thyroxin is our modern civilization with its exciting moving pictures, automobiles, social functions, and keen competitions.

If a check is not placed on the increasing incidence of goiter in this country, I have no doubt that in a few generations the disease will have as pernicious an influence on our population as it has on that of Switzerland. Bircher estimates the loss to the Swiss army due to the goiter endemic at one-sixth of its total force, including, as it does, the cretins, many of the feeble-minded, and the deaf and dumb. The conditions prevalent in Switzerland have not yet gained sufficient hold in this country to threaten our social welfare, but with several successive



generations of goiter in a family who can foretell when we must pay toll for our neglect with a shocking percentage of cretinism and idiocy.

By all means, therefore, iodine should be used in the prophylaxis of goiter and in the treatment of colloid goiter in persons under twenty years of age. I believe that every school girl in the goiter belt should receive small quantities of iodine during the school year, and I am giving 10 mg. a week to girls between the ages of twelve and twenty after the method of Marine and Kimball. At present I favor a chocolate-coated tablet (iodostarine) recommended by Kimball. In moderate-sized colloid goiters in girls between twelve and fifteen years of age, I give the same dosage. Girls from fifteen to twenty with evident colloid goiters are given two or three times this dosage, with monthly observation and metabolic check. In the vascular type of colloid goiter with thrills and bruits, I prefer thyroid extract or thyroxin as advocated by Plummer. The treatment of colloid goiter should be begun early since adenomas are prone to develop between the ages of fifteen and twenty.

In many colloid goiters it is difficult to determine whether or not small adenomas are present. After a few weeks of treatment one often is able definitely to palpate a suspected adenoma. In such a case I usually inform the parent that the goiter can probably not be cured by iodine, and I carefully explain that, if iodine should be given in too large quantities or over too long a time, a toxic condition might develop. A minimal dosage is given to these patients, and they are carefully watched. I have no idea of getting rid of the adenoma, but merely of retarding its growth by relieving the excessive demand on the thyroid and thus placing it at rest until the period of full development is reached. Children whose adenomas are evident on first examination are treated in the same way. With careful observation little harm can result, as the number of cases of toxic adenoma occurring in persons under twenty years of age is negligible. How much is accomplished by thus delaying or retarding the growth of the adenoma is a question.

One of the most usual remarks made by my patients is that they had a goiter when they were younger, but that they rubbed a salve on the neck and the goiter finally went away, and then a new goiter began a few years ago. The deposit of colloid disappeared, but the adenoma was always present.

After twenty years of age I do not advise the use of iodine, except in the pre-operative prep-

aration of exophthalmic goiter. In young women of this age the number of pure colloid goiters not containing adenomas is small, and they do not respond well to iodine. They should be left alone unless large enough to cause pressure symptoms or disfigurement, when they may be removed by thyroidectomy.

It is in persons between the ages of twenty-five and fifty that I find the greatest damage is being done by the use of iodine. In many instances no attempt apparently has been made to distinguish between a colloid and an adenomatous goiter. In other cases the physician prescribing iodine has seemingly been so gratified with the slight reduction in the size of the neck, through the effect on the colloid, that the developing signs of hyperthyroidism have been overlooked.

I believe the term iodine-Basedow, as applied by Breuer, is not a correct one to apply to this condition in the light of our present knowledge of the subject. We now definitely distinguish the form of hyperthyroidism occurring in exophthalmic goiter, or Basedow's disease, from the hyperthyroidism of toxic adenoma. Plummer, in 1913, pointed out the chief differences between the two conditions, and they should no more be confused than should typhoid fever and malaria. Briefly, the important points of differential diagnosis are that exophthalmic goiter is a disease of rather rapid onset, averaging nine months duration, and occurring most frequently in young persons between the ages of eighteen and thirty-five. It progresses by a series of waves at the crests of which all symptoms are exaggerated and a crisis of painless vomiting and diarrhea occurs. There is rapid loss of weight and strength, accompanied by a variable appetite. Examination reveals exophthalmos in 50 per cent of the cases within three months of the onset. There is symmetrical enlargement of the gland, and thrills and bruits are present in 80 per cent. The pulse pressure is high, a slightly elevated systolic and a low diastolic pressure being typical. On the other hand, an adenoma is present sixteen to eighteen years before toxic symptoms develop, unless hyperthyroidism is induced by iodine. The average age of the patient is forty-four years. The onset of toxic symptoms is both more gradual and less severe than in patients with exophthalmic goiter. The symptoms are of a slow insidious type with a serious and lasting effect on the kidneys and heart. Acute crises do not occur. Thrills and bruits are rare, and true exophthalmos is not seen. The systolic blood pressure is often high, and the diastolic is pro-

portionately elevated. The basal metabolic rate averages considerably lower than in exophthalmic goiter. In a series of cases previously reported<sup>6</sup> the rate averaged +54 per cent in the former and +29 per cent in the latter.

The toxic condition resulting from the use of iodine in the treatment of adenomatous goiter more properly may be termed "iodine hyperthyroidism." This form of hyperthyroidism is not typical of that occurring in ordinary toxic adenoma, although the clinical syndrome is apparently

also exerts a specific action on the heart of which there has as yet been no explanation. Following operation there frequently develops a very severe tachycardia that cannot be influenced by digitalis.

## SUMMARY

Iodine is a specific in the prevention and cure of the colloid goiter of adolescence providing no adenomas are present. In case small adenomas are present iodine may be given in minute amounts with the idea of retarding their growth until the patient is twenty years of age. After

Case	Sex	Age	Iodine Treatment Duration, months	Treatment Prescribed by	Basal metabolic rate, Per cent	Loss in weight	Treatment	Basal metabolic Rate on Discharge	Gain in weight pounds
32444	F	65	3	Family physician	29	10	Thyroidectomy	5%	25
32860	F	28	5	Family physician	17	12	Thyroidectomy	1%	24
31732	F	30	2	Family physician	20	5	Thyroidectomy	4%	3
29894	F	36	3	Family physician	44	26	Thyroidectomy	10%	25
33663	F	53	2	Family physician	29	30	Thyroidectomy	0%	50
34808	F	35	2½	Family physician	31	13	Thyroidectomy	8%	22
30160	F	34	2	Family physician	13	16	Thyroidectomy	4%	28
35087	F	40	3	Family physician	18	10	Thyroidectomy	4%	16
35365	F	52	4	Family physician	51	50	Thyroidectomy	5%	42
35280	F	52	3	Family physician	30	12	Thyroidectomy	6%	24
35351	F	35	2	Quack remedy	26	14	Thyroidectomy	0%	20
35267	F	37	3	Internist	40	23	Thyroidectomy	6%	22
33275	F	23	2	Internist	16	8	Thyroidectomy	4%	12
36687	F	38	4	Specialist	28	8	Thyroidectomy	2%	20
29598	F	50	3½	Specialist	25	15	Thyroidectomy	4%	18
36589	F	28	2	Family physician	28	10	Thyroidectomy	5%	8
34592	M	32	4	Quack remedy	24	10	Medical	8%	12
33276	F	27	3	Surgeon	22	15	Medical	4%	0



Fig. 1.



Fig. 2.



Fig. 3.

Fig. 1. Patient, aged 53, took a patent medicine containing potassium iodide. On admission the basal metabolic rate was +29 per cent; on dismissal following thyroidectomy it was 0 per cent. The patient has gained fifty pounds in four months.

Fig. 2. This patient, aged 36, first came to the Clinic with a basal metabolic rate of +8 per cent. Three months later she returned with a rate of +44 per cent and a history of having drunk a few bottles of patent medicine. She had lost twenty-five pounds and her condition was extremely toxic. Thyroidectomy was performed and six months later she has gained twenty-five pounds and has a basal metabolic rate of +10 per cent. All symptoms of hyperthyroidism have disappeared.

Fig. 3. On admission the basal metabolic rate of this patient was +61 per cent, and she had lost fifty pounds in weight. Her family physician had given her iodine for her goiter for a period of four months. The basal metabolic rate three months after thyroidectomy was +5 per cent. The gain in weight is forty-two pounds.

identical. Under medical treatment a certain number of patients with the induced type of hyperthyroidism recover, although the heart remains in an irritated condition for some time. Toxic adenoma, on the contrary, is a disease that grows progressively worse in spite of everything but surgical intervention. Iodine in these cases

this period iodine is administered in the presence of an adenoma with increasing risk, and in my opinion it should not be prescribed at all. Finally, the popular interest which has been aroused in the treatment of goiter by iodine has greatly increased the number of cases of iodine hyperthyroidism. For those who are not especially



interested in diseases of the thyroid, the following rule is suggested: If in doubt of the presence of an adenoma of the thyroid, do not give iodine.

The analytical chart of the eighteen cases of iodine hyperthyroidism presented here represents only a portion of the cases of this type observed at the Clinic during the past year.

## REFERENCES

1. Bardeen, C.: Personal communication.
2. Bircher, H.: Quoted by Crotti.
3. Breuer: Quoted by Crotti.
4. Jackson, A. S.: The prevention and cure of goiter, with a review of 100 thyroidectomies performed in 1923. *Wisconsin State Med. Jour.*, 1924, xxii, 412-419.
5. Marine, D. and Kimball, O. P.: Goiter survey work in Ohio: the incidence of simple goiter in the school children of Cleveland, Akron, and Warren. *Ohio State Med. Jour.*, 1920, xvi, 757-760.
6. Plummer, H. S.: Personal communication.  
The clinical and pathological relationship of simple and exophthalmic goiter. *Am. Jour. Med. Sc.*, 1913, cxlvi, 790-796.
7. Rilliet: Quoted by Crotti.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of May 14, 1924

DR. A. S. HAMILTON, Presiding

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, May 14, 1924, at 8 P. M. The meeting was called to order by the President, Dr. Hamilton. There were 34 members and 3 visitors present.

The minutes of the April meeting were read and approved.

The following case reports were given:

Dr. A. C. Strachauer (Minneapolis) reported three cases of carcinoma of the rectum, with demonstration of specimens. He then presented the subject of surgery of cancer of the rectum and showed lantern slides:

In briefly reviewing our experience in this field the following features stand out prominently:

1. The long interval of time elapsing between the appearance of the symptoms of cancer of the rectum and the time of institution of treatment. The majority of patients have not heeded or appreciated the importance of Nature's warning.

2. The long interval that so commonly obtains between the time of the first visit of the patient to a physician on account of warning symptoms and the institution of proper treatment. Here the profession is grossly derelict. In many instances not even a digital examination is made. One of the cases here presented was treated for diarrhea, secondary to a carcinoma of the rectum that could be readily palpated, for over a year without a digital examination ever being made.

3. As a profession we are making the mistake of regarding only patients over thirty-five or forty years as being in the cancer age. We have had a number of cases of cancer of the rectum under thirty, the youngest being twenty-six.

4. Surgery of carcinoma of the rectum has been a dark chapter attended by high mortality and morbidity and unsatisfactory after-results. The Kraske operation, with removal of the lower sacral segments, is a formidable and mutilating procedure. Bilroth, in 1896, reported 608 cases with a mortality of 53 per cent. The institution of the two-stage opera-

tion cut this mortality to about one-half. The two or more stage operation with improvement in technical details has further reduced the mortality to less than 2 per cent.

The posteriorly placed artificial anus is purely a matter of sentiment, and when so placed without sphincter control it is the poorest of locations. A lower, left rectus anus performed with an ample loop of bowel for the accumulation of feces, with a valve opening, is nearly as satisfactory as the normal. I have one such patient of eleven years standing who states that he has gotten along nearly "as good as before." The exercise of the voluntary control of the lower rectus muscle can be further developed and is at times of assistance to these individuals. A truss with a pad over the artificial anus has been found to be more satisfactory than a colostomy bag.

Hemorrhage and infection have been the outstanding responsible factors in making cancer of the rectum so dark a chapter in the practice of surgery. Hemorrhage and shock are synonymous. Patients who have lost blood are more susceptible to the ravages of sepsis and respiratory infection and the various postoperative complications.

Dr. Coffey has developed what constitutes the nearly ideal operation in that it controls these two factors and, in addition, provides for the performance of the major procedure by the abdominal route, all performed under the direct vision of the operator.

An ample right rectus incision is made with the patient in the extreme Trendelenburg position.

a. The superior hemorrhoidal artery is ligated and divided just below the promontory of the sacrum, thus controlling the arterial hemorrhage of the operative field at its source, instead of repeatedly dividing the terminal branches with successive hemorrhages as in the Kraske operation.

b. The major dissection is performed through the abdomen under direct vision of the operator, with complete hemostasis by ligature and suture. The bowel is separated from the uterus in the female and the bladder in the male, and the dissection carried down below the tip of the coccyx, if indicated. Opportunity for the removal of lymph nodes and perirectal fat and tissues is afforded under direct

vision. The bowel is divided by the cautery, thus sterilizing the cut surfaces of the bowel. A left rectus anus with a trap is formed and the lower portion of the sigmoid and rectum are invaginated through the anus by traction on a rectal tube fastened to the divided end of the bowel. The peritoneal floor of the pelvis is completely closed over this dissection and by drawing in the loose peritoneum from the sides of the pelvis an extraperitoneal cavity drainage tract (the latter formed of peritoneum) is established, draining suprapubically from the region of the base of the bladder. In the female after closure of the peritoneum of the floor of the pelvis a post-vaginal drainage is established.

The second stage of the operation is performed after ten days, and is a quite minor and bloodless procedure, ten or twelve minutes sufficing for its performance. In the female it is not even necessary to remove the coccyx. In the male an incision is made around the anus and extended over the length of the coccyx, the latter being removed, and the rectum and invaginated sigmoid are scooped out. By placing a rubber tube down the suprapubic tract on through the operative field, with its exit through the perineum, the entire operative field in the hollow of the sacrum can be washed, kept clean, and irrigated with Carrel-Dakin fluid, thus controlling the element of sepsis, hastening healing and greatly shortening the postoperative convalescence.

Dr. A. W. Collins (Duluth) gave the following case report:

C. G. D., aged 34, married; born in Maine; occupation, executive secretary. Mother died at about the age of 70; cause unknown. Father living and in fair health, aged 70 or over. No family history of tuberculosis, carcinoma, insanity, or Bright's disease. Patient was a healthy child until in his teens, or about twenty years ago, when he was operated on for appendicitis, at which time the wound drained for three weeks, which he spent in bed. About one week ago, while skiing down a hill, he struck against a stone fence and hurt his right side in the neighborhood of the old operation scar and had pain along the groin and down into the right cord and testicle. Two days before I saw him, in January, about one week following the skiing accident, he made a long auto trip into the country on business and became quite chilled. He complained of much pain in the right side on that day. On Sunday, the following day, January 20, 1924, he was worse and stayed in bed. On Monday, January 21, I saw him on the invitation of Dr. Cyril Smith. I found him lying in bed in a characteristic attitude of pain; he complained of tenderness in the right abdomen and gave me the above history, also that he had had a chill on the evening of January 19 and that he had had more or less distress in urinating.

Examination: No lung involvement. His temperature on admission to the hospital was 102,<sup>o</sup> and the tenderness was exquisite over the old wound, but there was no sign of fluctuation; he was also tender out in the right lumbar region. Pressure from the back forward in this region made him wince considerably. The tenderness in the right iliac region extended upward and gave considerable spasm

to the muscles in the liver region. The left rectus (muscle) was not spastic. There was no resistance in the other portions of the abdomen. On careful questioning he stated that the appendix was removed at the time of his operation twenty years ago. He insisted that the operation was done by a competent surgeon in a large city, who was chief of a surgical service, and that the appendix was removed, according to the statement of the surgeon.

The urine was scanty, very dark in color, and contained no sediment. The tongue was thickly coated. The bowels had moved the day before, he having had a physic. The stereo-*x*-ray of the chest was negative. The throat was negative. On further examination of the abdomen a quick pressure over the sigmoid gave reflex pain in the region of the cecum. The white count was 19,000.

Diagnosis at that time: acute pelvic infection, possibly intestinal obstruction from old adhesions, possibly abscess in the pelvis.

Operation: Separation of intestinal adhesions and severing of constricting bands.

Operation findings: The cecum was bound down in the lumbar trough and adherent beneath the old appendectomy scar. It was folded on itself with adhesions, the last three or four inches of the ileum were pulled down into the pelvis by adhesive bands. The last two or three inches of ileum were constricted by bands. The gut was red and, in spots, raw. The omentum at one spot adherent, red and thickened. No pus. No appendix. The adhesions were separated, and the constricted gut freed by cutting the bands.

Anesthetic, ether; drainage, by rubber tube.

Peritonitis developed rapidly, and he died the following evening.

Autopsy showed: Spleen, adrenals, bladder, prostate, liver, stomach, small intestines, lungs—all practically negative. The external iliac glands of the right side were very much enlarged, congested, and edematous. Marked proliferation of the connective tissues below the old lateral appendectomy scar described above. This fibrous tissue in places very congested and edematous and shows slits filled with pus. Such spaces filled with pus are found between the fascia transversalis and the transversus abdominis, near to the iliac crest, and also between the anterior layer of the lumbodorsal fascia and the quadratus lumborum, near to the iliac crest.

The soft parts are very much congested, edematous, and infiltrated around the right iliac crest, around its anterior part. The iliac crests are then cleaned of the surrounding soft parts and the anterior part of the right iliac crest is seen to be about one and one-half times as thick as the left one. On cut surface, the corticalis of the right iliac crest is thick, and very dense; the spongiosa is also more dense than usual. The peritoneum at the surface of this thickened bone is also more thick and tough than on the left side. No abscess is found in the bone; no sequestrum. The only observation made is the thickening of the bone, the thickening of the periosteum, the edema and fibrosis of the surrounding tissues which are in direct connection with the above described purulent fistulous tracts. No changes can be found in the other parts of the iliac bone, in the 12th rib, or in the dorsal column.



The diameter of the thigh is the same on both sides. There are no apparent wounds of the right limb or of the anus.

The cecum was attached to the iliac fossa, somewhat tighter than usual, by tough connective tissue. (The appendix had been removed about twenty years ago and no rests in the wound of amputation could be found on the cecum.) The periosteum of the iliac bone is not loosened at any place; there are no naked and rough bony surfaces.

No perforation of the gut at any point, the gut having been filled with water to determine this.

Anatomical diagnosis:

Status after recent laparotomy.

Status after old appendectomy.

Retrocecal chronic inflammation.

(Reactive) periostitis of the right iliac crest.

Inflammation of the peritoneum (peritonitis).

Cloudy swelling of the kidneys.

Cloudy swelling of the liver.

Chronic cholecystitis.

Smears of pus of the parietal abscesses show numerous isolated gram-positive cocci and only a few short chains of streptococci, several groups of staphylococci.

Summary: This seems to me an unusual condition of infection lurking in an old drainage wound following appendectomy, 20 years ago. The lighting up probably had its origin in the "bump" against the stone fence a week before admission to the hospital and his lack of care of himself in the interim.

The obscurity was deepened by his insistence that the appendix was removed. The doubt of this still lurked, however, in the minds of consultants and myself.

Dr. A. E. Benjamin (Minneapolis) reported a case of acute appendicitis, rupture, gangrenous, and intussusception.

Mrs. W., aged 41, married, two children, aged 20 and 10. Family history, negative.

Personal history: Well, except following birth of first child she had pelvic peritonitis with some pelvic trouble for some time, with pain on the left side of the lower abdomen.

Symptoms: Was taken suddenly ill on the morning of the 13th, with acute gastric disturbance and soreness in the right lower quadrant. Has had paroxysmal attacks of pain with relief between. Was sent to the hospital on the evening of the 13th. Leucocyte count 16,000; temperature 99°, which rose to 100° the next morning. Urinalysis: slight trace of albumen, otherwise negative.

Morning of the 14th, patient feeling very well. Temperature, 100°, and pulse 100. Great deal of pain upon pressure over the appendix. No vomiting. Abdomen fairly flat.

Operation: Under local anesthetic, gas and ether, median incision was made. The left ovary was found three times normal size, fibrocystic, with left tube enveloping it and two parovarian cysts, thin-walled and containing about an ounce of serum. The outer half of the tube and the ovary were removed, and also the cysts. The gall-bladder was large but contained no stones. It was somewhat prolapsed.

The appendix was acutely inflamed and two and

one-quarter inches long, not diseased at the outer half. The base of it was surrounded by inflammatory bands and the cecum creeping upon the lower third of the appendix, the base being inverted somewhat. The cecum around the base of the appendix was very much thickened and inflamed. The ileum was kinked somewhat. This whole mass was telescoped into the ascending colon which was redundant, showing a definite beginning of intussusception. A few bands were beginning to form, holding it in this position. This was reduced as well as the base of the appendix, gently pulling out all the surrounding cecum. The appendix had ruptured at the base but the imbedded condition prevented the pus escaping before operation. The base was entirely gangrenous, as well as a part of the cecum. The appendix was removed and this portion of the cecum involved. Supplementary sutures brought the other portion of the cecum, mesentery, appendix and omentum over the involved diseased area. A penrose drain was left to drain this diseased area.

Patient operated upon this morning, May 14, 1924.

Dr. A. Schwyzer (St. Paul) gave an additional report of a case:

This case was presented before the Academy two and one-half years ago.

Patient, a lady, then 69½ years old, was operated on two and one-half years ago. Cholecystectomy was done for severe cholecystitis with stones; and because there was great thickening in the cystic duct we inadvertently removed the whole of the hepatic duct. This case was published last fall in the "Surgical Clinics of North America." We were not sure at the time of operation that we had injured the duct, but thought we had because there was a suspicious looking cord running upward. While the assistant closed up the wound I went into the laboratory and cut the specimen open. In the wall of the cystic duct we noticed a little tube. A frozen microscopic section showed epithelium. The shape of the tube showed that the upper end was near the bifurcation. We had not only removed part of the hepatic duct, but had removed every bit of it. The wound was amply drained. I went in again after six days, which I thought would be just long enough to have the effect of the operation overcome and short enough so that I could still open the wound easily. We found, back of the duodenum and covered by fibrin, the tied-off common duct. On the liver there was the raw surface from the cholecystectomy, and there was no sign of the duct. However, we found a little catgut on a small cord and hoped that was where we tied the duct. We loosened that ligature and it started to pump; it was the cystic artery. No place could be made out on the surface of the liver where the duct was to be. But mopping carefully we finally saw a little oozing of bile, so we took a large uterine sound and went in. It slipped in easily toward the left, so that we knew we were in the left hepatic duct. Some bile escaped along this sound. We introduced a small catheter cut on a slant and left it there. The stump of this cystic artery was used to anchor it with chromic catgut. The lower part of the tube was also cut on a slant so as not to cause any pres-

sure. The catheter was left long, so as to get the lower end out of and beyond the duodenum. After dilating the papilla, the tube went in easily. We could readily approximate the upper end of the common duct to the liver, but there was nothing to hold it except that cystic artery stump.

The tube was left in till now. It was thus in for two and one-half years, and the patient came to town at different intervals. Each time the *x*-ray picture was identical, with the tube remaining in place. She was perfectly well. I had word from her two years after the operation that she did her work and was well.

All went well until about three weeks ago, when she developed chills, temperature of 103° to 103.5°; and she became severely jaundiced. She was brought to the city. We put her on Carlsbad, hoping for a gradual decrease of the fever. At the end of eight days the same condition existed. From the *x*-ray picture it appeared that the tube was still in place. We had to remove that tube. But, perhaps the tube had come out of the duct, and was the present condition due to a stricture. When the tube was removed by nicking the duodenum and grasping the tube with a thin artery forceps, it retained the shape it shows in the *x*-ray picture, and was quite stiff. You see here the tube. I throw it on the table; it always retains the same curves which you saw in the *x*-ray two and one-half years ago and which you see in the one taken immediately before this last operation. That is undoubtedly the reason why it was not passed.

In the upper opening we noticed a smeary, greyish-looking material. We figured that, if this was pus, the tube had been still in place, as otherwise food would have washed it clean of pus. If the tube had still been in place, our operation promised a good result. We thus made a smear of this material and found it to be pus with an immense amount of bacilli of hay-bacillus shape.

The patient thus had an infectious cholangitis. The chills stopped, and now, after eight days, she is free from fever, sits up, and the jaundice has already nearly disappeared.

Dr. Schwyzer also showed autopsy specimen of a case of aneurysm of the uppermost part of the descending aorta, perforating in three places

into the left bronchus. The patient died very suddenly from hemorrhage. The posterior wall of the aneurysm had disappeared from pressure against the vertebral column. Three vertebræ had been eroded with the intervertebral cartilaginous discs protruding, as they are less readily yielding to pressure.

Dr. S. E. Sweitzer (Minneapolis) then gave his inaugural Thesis, entitled "Protein Skin Diseases Including Syphilis and Lantern Slide Demonstration."

#### DISCUSSION

DR. C. D. FREEMAN (St. Paul): The method by which Dr. Sweitzer has made his entré into the Academy of Medicine is very commendable. When I heard he was to give a lantern-slide demonstration, instead of a thesis on some rare skin disease, I told him he used good judgment. To the average physician dermatology is a vague subject, and an ultrascientific paper by him before a body of general men would be similar to a surgeon, neurologist, or occultist delving into the intricacies of their specialties before a dermatological society.

He has practically made a clinical evening of it and has shown slides of cases many of you can recognize. I think Dr. Sweitzer is to be congratulated on his collection.

DR. PAUL COOK (St. Paul): I wish to add only that the change in the last twenty years has been very marked in the teaching of dermatological subjects. With the development of photography and showing of lantern slides, I think all physicians will be better trained in dermatology. Heretofore the ordinary courses in dermatology have consisted of lectures. The only way one can teach dermatology is to show patients with the diseases or show lantern slides that will picture it clearly. I think in a few years opticians will develop lenses so that they will show the lesions better, and there are great possibilities in color photography. Heretofore one had to go into the clinic and spend an immense amount of time examining patients.

—JOHN E. HAYNES, M.D.,  
Secretary.

## SPEECH CLINIC OF THE MINNEAPOLIS GENERAL HOSPITAL\*

By WALTER E. LIST, M.D.

Superintendent

MARY KILGOUR

Speech Instructor

MINNEAPOLIS, MINNESOTA

One of the problems to which little attention has been given in the past, but which is now receiving the thoughtful consideration of both the medical and the educational profession, is

defective speech. It has been estimated by those in a position to know, that five thousand children in Minneapolis have defective speech. There are many adults, two or three thousand at least, who also need corrective speech training.

\*At our request Dr. List prepared this account of the work done in the Speech Clinic of the Hospital.—The Editor.



To help meet this need the General Hospital has established a Speech Clinic in its Out-Patient Department. Here those suffering from any speech defect, whether children or adults, may come for treatment. A thorough physical examination, as well as a speech examination, is given on entrance to determine the nature and cause of the trouble. Whatever medical or surgical treatment is found necessary is prescribed by the examining physician, and the patient is sent to the clinic school for corrective training.

Stammering, the inability to begin a word or sentence, is the trouble for which help is most frequently asked. The elementary sounds of the English language are taught separately, then in combinations of two, three, and four in an endless variety of rhythmic syllable and sentence drills. As the pupil finds that he can speak the simple rhythmic drills correctly, his confidence in himself increases and his will to always so speak is awakened. This marks 75 per cent of the winning of the battle. Exercises for the limbering and control of the tongue, lips, and voice play an important part in the establishing of this co-ordination between the brain and the speech organs. Another aid along this line is hand work, and the pupils have work in basket making, drawing and coloring of pictures, and paper cutting.

A close second in number to the stammerers are the cases which come under the heading of delayed and retarded speech. There are a variety of causes,—Little's disease, tongue-tie, cretonism, and other diseases. The method of procedure is much the same as in the case of stam-

mering, for the fundamentals underlying correct speech are the same, regardless of the cause of their violation. Variations of drills are made to fit the individual needs of the pupils, a notebook containing individual lessons to be practiced at home being given each one. Corrective physical exercises for the co-ordination of the movements of hands and feet are also given this type of cases.

Some deaf and very hard-of-hearing children have been brought to us. In addition to the teaching of elements they are given acoustic training and lip-reading. By acoustic training the sound perception of a hard-of-hearing child can be so educated that there is an appearance of greatly improved hearing, and in many cases an actual development of tone perception can be accomplished. Through training the eyes to note the movement and position of the lips and tongue for each sound it is possible for the deaf to follow spoken language, as well as to read written language.

Cases of lisping, letter substitution, and mumbling speech, technically known as "lolling," are also treated.

At present there is a capacity for handling fifteen pupils a day, giving each pupil an hour's lesson. Classes are arranged for the morning and evening hours, the latter to accommodate adults who cannot attend classes during working hours. Most pupils come only two or three times a week, and all are requested to do daily practice at home.

A small fee is charged those who are able to pay for the lessons.

## UNERUPTED AND IMPACTED TEETH

REPORT OF A CASE IN WHICH TWO UNERUPTED UPPER CUSPIDS CAUSED NO SYMPTOMS UNTIL VERY LATE IN LIFE

By T. C. BONNEY, D.D.S.

ABERDEEN, SOUTH DAKOTA

Mrs. W., aged 65, had worn an upper partial plate for nearly twenty-five years. Three years ago she began to have pain in the upper left lateral region, which finally got so severe that she could no longer wear the plate.

Prior to her visit to me she had consulted four physicians during the past three years without obtaining any relief or securing a hint as to what might be the cause of her trouble. She was referred to me by her daughter, and an

examination showed a boggy swelling about the size of a small hazle-nut in the upper left lateral incisor region. This mass was very tender and had much the appearance of an old chronic abscess. I suggested that the trouble might be caused by either an infected cyst, a root fragment left years ago, or an unerupted tooth, and I advised having an x-ray film made.

The accompanying radiogram shows very clearly the cause of the trouble. There are

present in the jaws two unerupted cuspids, the crown of the left one being practically destroyed by caries with resultant infection of the surrounding soft parts. Had an  $x$ -ray examination been made when the trouble first developed and the unerupted teeth been removed, this patient would have been saved many months of suffering.

I am presenting this case to call the attention of physicians to the necessity of more careful examination in many mouth conditions in which the etiology is obscure, and as a striking example of the value of the  $x$ -ray in the diagnosis of many oral conditions.



## RADIUM TREATMENT FOR CANCER OF THE UPPER END OF ESOPHAGUS\*

BY CHARLES D. HARRINGTON, M.D.

Röntgenologist, St. Barnabas, St. Mary's, Abbott, and St. Andrew's Hospitals  
MINNEAPOLIS, MINNESOTA

It is unfortunate that cancer of the esophagus, like cancer of some other parts of the body, is not discovered until the disease is advanced beyond any hope of cure, patients generally not presenting themselves for examination until they are unable to swallow solid food. At this stage the development of the cancer is generally rapid, which may be due partly to the increased irritation in taking food. Patients do not complain of pain, as a rule, until the disease is far advanced. Physicians should not overlook the esophagus when patients are examined complaining of slight stomach trouble.

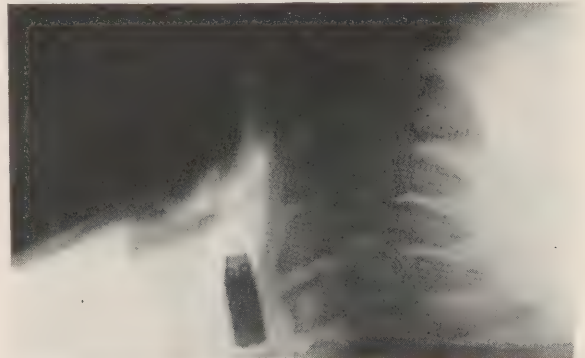
I wish to report two advanced cases where the growth was at the upper end of the esophagus:

CASE 1.—Male; 60 years of age; weight, 150 lb.; laborer.

The patient went to his family physician when he found it difficult to swallow solid food. The development had been very gradual, and as there was no pain he did not think it necessary to consult a physician. He was referred to me for treatment.

Patient had been unable to take solid food for a number of days, and only soft foods for a number of weeks. He had lost considerable weight and was despondent. Röntgenoscopic examination, with barium malted milk mixture, disclosed a growth involving about two inches of the upper end of the esophagus. Four per cent cocaine was applied to the throat, and a 50 mg. tube of radium, fastened with a linen thread, was placed in position with a curved forceps. No force was used in placing the radium tube directly on the upper end of the growth. The free end of the thread was fastened to the

cheek with adhesive tape, leaving a little slack in the thread.



Case 1.—Radium tube in the esophagus.

The patient was then examined with the röntgenoscope to determine the exact position of the radium. After the first few minutes there was not much difficulty in keeping the tube in place. Treatment lasted two hours. Four treatments were given, with one day between treatments. The week following these treatments, he reported at the office and stated that he had eaten eight griddle-cakes for breakfast without difficulty. He was in better spirits and felt as if he had a new lease on life.

Eight weeks later the treatment was repeated. Radium could be placed a little lower in the esophagus. During the reaction following the second radium treatment his friends became very much interested in him, to the extent of inducing him to go to a clinic, where he could get well quicker. I did not see him again, but was advised of his death the following month, two months from the time I first saw him.



The lessons we get from this patient are, first, the almost hopeless condition before the growth was discovered; second, that relief can be obtained to a greater or less degree, which is worth the effort; third, that, where it is possible, the patient should be in a hospital under the control of the physician, out of reach of his over-sympathetic friends, who would like to drag him from one office to another, with disastrous results.

CASE 2.—Female, aged 55; married; great loss of weight.

She consulted a surgeon because she could not take solid food. Examination showed a growth involving the upper two inches of the esophagus. This patient remained a hospital patient, and was given radium treatment similar to Case 1. Some slight improvement was noted after the first treatment, but the loss of weight continued on account of lack of nourishment. The surgeon was requested to do a gastrostomy, which was done under local anesthesia. Food was then given through a tube. Under direct vision, with a short esophagoscope, a tube of radium was placed into the almost obliterated canal. After the reaction from the radium treatment, liquids could be taken, and the patient was more comfortable, being able to swallow mucus and saliva. This treatment was repeated in four weeks. The patient had gained slightly in weight and was fairly comfortable. At this time further treatment was refused, and the patient left the hospital. She died six months later, nine months from the time she first entered the hospital.



Case 2.—Radium tube in the esophagus.

In reporting these advanced cases, I wish to call attention to the method of treatment, showing that some comfort and relief can be obtained in a simple way. Much better results can be expected if these patients are seen early. Radium can be held in position for several hours without much discomfort.

## BOOK NOTICES

APPLIED PSYCHOLOGY FOR NURSES. By Donald A. Laird, Assistant Professor of Psychology, University of Wyoming. Philadelphia. J. B. Lippincott Company. 266 pages. Cloth. \$2.50.

The author dedicates his book "To the nurse who would understand her own mental life and to the patient, whose mental life should be understood by the nurse."

Dr. Laird attempts to select from the literature of psychology those facts that should be of the most aid to nurses in understanding the patient themselves and their fellow-men as organisms that act, think, and feel. He adopts the theory of the psychobiologist, and discusses the biological foundations of behavior, the more practical results of biological adaptations in the psychological level, and also some aspects of mental hygiene.

—J. C. MICHAEL, M.D.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month), vol. vii, Number V, March, 1924. Per clinic year (July 1923 to May 1924), paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The outstanding articles in the March (St. Louis) number of the Medical Clinics of North America are those of Engelbach on "Pituitary Tumor" and Tierney on "Headache."

The various articles, contributed by nineteen men, cover the various phases of general medicine and pediatrics. They are presented in the form of well worked up case reports, outlined without needless detail and discussed with the evident intention of meeting the needs of a general practitioner's reading. Taken as a whole, the volume is worth the time spent in its perusal.

Dr. Wm. Engelbach discusses very clearly some of the earlier signs of pituitary tumor, at the same time pointing out departures from the oft-presented "classical picture." Emphasis is placed upon the different color changes in the visual fields and the fact that many deviations from the well-recognized changes of bitemporal hemianopsia are met with. The changes from time to time in the fields of any single case as denoting course of growth of the tumor, are very well elucidated. Sella changes are also discussed with the timely warning that the so-called normal sella shows so many variations that care must be extreme in interpretation. General hormonal signs are mentioned, without being discussed in much detail. The progress, course, differential diagnosis, treatment, and prognosis are given.

A companion article is that of John L. Tierney on headaches. In his usual logical and uninvolved manner he follows a reasonable classification of intracranial and extracranial, dividing the first into cortical, which he dismisses almost immediately, and dural, under which heading is discussed migraine and pituitary headaches in some detail, with pre-

sentation of cases. The extradural causes are given as osseous, ocular, dental, nasal (including sinusitis, —vacuum and ganglion types), neuralgia, and indurative rheumatic. The discussion of migraine is extremely suggestive, and brings forward the relationship of this obscure malady to the nervous system on the one hand, and the endocrine system on the other. The use of calcium is suggested and the procedure outlined in some detail. Pituitary headache with its treatment by glandular therapy is also clearly discussed.

Schwab, from a neurologic clinic, analyzes certain functional cardiac conditions from the psychoneurotic point of view. His cases are well presented, and, although there is an evident Freudian bias, it is not stressed. A reading of his cases should stimulate investigation of the lightly dismissed "cardiac neurotic."

After spending some pages in defining the term "hysteria" and loosely classifying that condition among the psychoses, Barnes importunes for a recognition of, and differentiation from, hysteric constitution and hysteric reaction to a constitutional anomaly. His discussion of cases shows the very influence of the neighboring endocrinologic clinic of Engelbach and Tierney.

There is a series of pediatric clinics, including Brady's on intracranial hemorrhage in the new-born and the use of the cisterna magna puncture when spinal puncture fails; Marriot's on nephritis in children, stressing the factor of infection; Veeder's presentation of an atypical case of lobar pneumonia in a child with discussion of sequelæ; Jean's on diphtheria, particularizing as to the use prophylactically and therapeutically of antitoxin both as to time, methods of administration, and dosage; Zabrowsky's presentation of the unusual occurrence of erythema nodosum in a child, a case showing Saunder's sign of "hand and mouth synkinesia" and the use of blood serum in a case of extreme marasmus.

Ralph Kinsella's clinic on benign and malignant hypertension is very evidently a student's lecture based upon Volhard and Fahr's classification of nephritides. Diet and infections are not stressed and the importance of rest with the use of digitalis in the anuric and edematous case is opportunely discussed. An often forgotten fact, that an optimum pulse pressure must be maintained regardless of total pressure, is well emphasized.

Taussig demonstrates the importance of the sugar tolerance test in differentiating renal glycosuria,

prediabetic and diabetic cases. The descriptive terms, non-diabetic glycosuria and non-glycosuric diabetes, are used for the first two types with clear justification. A related subject, the weight curve in diabetes, is treated by Olmsted, who shows by charts that the weight curve is a good clinical guide to the severity of the case and its progress under treatment, if due allowance is made for the age of the patient.

Luten uses digitalis to good results in cases of failing myocardium with edema, irrespective of whether the conduction mechanism is embarrassed. He states, however, that no benefit is to be expected in "toxic" myocarditis even with fibrillation, but does not clearly define his terms. He does not use it in acute infectious valulitis unless there is broken compensation.

Soper claims that the clinical history is the most important differential diagnostic datum to be had in the consideration of pyloric obstruction in the aged, inasmuch as the majority of cases narrow down to obstructive ulcer or malignancy.

Lyten presents three unusual cases: first, metastatic adenocarcinoma of the brain (primary in rectum) with a discussion of the localizing signs; second, a case of multiple emboli from an endocarditis which necessitated amputation of a leg for gangrene and ultimately killed the patient with a mesenteric thrombosis; and, third, a perforating gastric ulcer which had given a misleading filling defect and hour-glass constriction roentgenologically, due to its rupture into the pancreas and consequent perigastric inflammation.

Wilson covers in an orthodox manner the etiology, course, and sequelæ of influenza.

MacMahon's discussion of purpura suffers considerably by comparison with the recent work of Brill, of Mt. Sinai.

Hempelman reports a case of Mikulicz's disease, and Neilson finds the prostate the most frequent focus of chronic infection in the male.

It is seen from the above inadequate and unfairly brief review that this volume contains nothing particularly erudite. It is, however, enlightening in that it shows work-a-day clinics in operation by men who are using a good deal of common sense in the analysis of cases and who are not afraid of emphasizing the ordinary procedures. It is a relief to find that clinical observation is still being done and that dependence upon the laboratory is not mentally stultifying all clinicians at least.

—J. B. CAREY, M.D.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

JUNE 15, 1924

## ERYTHREDEMA

In a recent article Frederick Langmead has called attention to the history of erythredema, sometimes known as "pink disease" and also as "achrodynia." This disease has been known, according to the authorities, for a quarter of a century, especially in Australia, but no attention was drawn to it in literature until a paper by H. Swift, which appeared in the *London Lancet* in 1914. In 1921 A. J. Wood and F. H. Cole were able to compile records of 91 cases, and these came from the medical journal of Australia. Other papers by Clubbe, Weston, Bilderback (published in *Northwest Medicine* in October, 1920) definitely defined a symptom-complex which was not accurately recognized. More recently Byfield, Zahorsky, Carten, Emerson, Freed, Weber, and Thurston and Patterson have written on the subject.

In spite of all these authorities but few cases were really recognized in this country, but recently in Minneapolis there have been presented for consideration fourteen cases which were outlined by Dr. F. C. Rodda. Now that the disease has attained such clearness in diagnosis, more cases are reported. Most of the symptoms which are recognized early are those in which a change of disposition is a very constant manifestation. The child becomes miserable and inactive, sleeping irregularly, and waking and crying many times during the night. He takes no interest in

his foods or toys and is uncomfortable whether sitting up or lying down. Not infrequently the skin eruption precedes the symptoms mentioned above. The rash usually appears suddenly and is apt to be regarded as measles, rubella, or scarlet fever, especially when it is accompanied by a temperature. It sometimes resembles eczema or is fleeting and changeable and may be mistaken for erythema multiforme or urticaria. The skin shows sometimes minute papules, and these are limited, often, to the hands and wrist or the feet and ankles, and it is patchy and thick and reddish for an indefinite period. The skin is really not pink but a dusky or garnet red. The hands and feet are sometimes called "raw-beef" hands and feet. The fingers are bluish-red and swollen, and may desquamate, while the hands are enlarged, sweat freely, or are icy cold. The gastro-intestinal tract shows a very decided change, and children are apt to put their hands in their mouths as if something were wrong, the mouth is sore or the lower jaw is affected so that some change has been going on in the mucous membrane. It is commonly accompanied by green, slimy stools, and there is an excoriation about the anus.

The nervous system is usually involved in most of the cases. There are hyperesthesia and pain on moving the limbs while paresthesia is recognizable in most cases. Large areas of anesthesia occasionally occur, and there is usually a muscular weakness which renders the child unable to support himself, either sitting up or standing, and the voluntary movements of the limbs are checked or in abeyance for several weeks. The deep reflexes are often exaggerated and later become weakened or lost. There is usually a marked leucocytosis (12,000 to 30,000 in severe cases), and the proportion of polymorphonuclear cells is increased, except in very young infants, when they may be equalled by the lymphocytes. There is no definite anemia. Some of the authorities find, as they suppose, a pathological evidence of a peripheral neuritis and of a chronic inflammatory change in the spinal cord and nerve roots; and here the sensory fibers are not affected, but the motor.

It seems to be generally accepted that the cause is infection from some source; and, if it can be reached, it may be eradicated and the patient makes a fairly prompt recovery. In all cases there is malnutrition; and, if it is recognized and the feeding of the child is remedied, the recovery is very prompt, usually.

This disease will probably be more readily recognized than heretofore because at this time

widespread information has been going through the medical journals which makes it possible to recognize the issue. Rest, correction of dietary disturbances, cleansing of the gastro-intestinal mucosa, and the removal of infected areas are the important factors.

### MURDER OF DELIBERATION

The whole world has recently been astounded by the murder of a Chicago school boy by two University men nineteen years of age; and speculation as to why it was done is ripe in the press, and what the motive was is still to be determined in the courts. They have asserted that they did it in a spirit of adventure. Some call them insane; others call them addicts or perverts; others supernormal egotists; and they probably come under the head of psychological criminals, which covers the wide field of "bad behavior."

The families of the three boys, including the murdered one, are looked upon as fine, intelligent people and of good social standing. They have money in abundance; and the idea is spreading that with all the money that the parents of the two boys have it may release them in some way, or at least will put many obstacles in the way of the arrival of justice. Doubtless many threats have been made in Chicago that if the boys were freed they will not live long. The spirit of revenge is often and freely discussed. Someone has said they were the victims of modern literature, or the so-called sensational books and matter which appears on the printed page.

Chicago is evidently determined to do its best to convict these boys speedily in order to make an impression on others who may be tempted to follow in their footsteps. This has always been a questionable procedure. Whether the example of complete punishment has any effect upon similarly organized individuals is doubtful because the exposition of crime, its publicity, and the speedy termination or a long-drawn out litigation simply fires the weak or radical element to occupy the page of publicity. From now on this case will be followed with intense interest by thousands of readers, and the outcome, whatever it is, will be the subject of criticism. It is unfortunate that in our present-day methods of securing justice publicity cannot be avoided. If these men had been arrested, the case proved against them, and sensationalism and dramatic and spectacular efforts suppressed, with only a few lines of notice telling of the verdict and the carrying out of the sentence imposed, it would have

done much toward deterring others from similar actions.

One is tempted to speculate upon what is behind all this—whether the studies in biology and heredity of these cases would be of any service. It is said that so far there is no evidence of any hereditary defects in the family. The evolutionary tendencies toward criminal acts offer another field in addition to biology and heredity. And yet there are doubtless many who would say that the environment of the young people had much to do with the development of their crimes, but this is theoretical. It is quite probable that somewhere the germinal cell has asserted itself and that whatever efforts were made to develop these children by suitable environment would make no difference; that what is in the germinal cell is inevitably present in the younger generation, the same phase of life. Both of these young men seem to be more or less indifferent; and because one has told the truth, as far as is known, and has confessed his part in the crime, the other is indignant and resentful and threatening in his attitude. Both boys, it seems, have contemplated suicide, but it seems unlikely that this would be carried out because morally such people are cowardly, and these boys probably will both go through the gamut of speculation and criticism and get some sort of thrill out of the situation.

As time goes on some of the facts surrounding them may be brought out, and probably some of the experts will attempt to revive the old classification commonly called "moral insanity," to which they have no claim. Although it seems, too, that these boys were approximately normal in mind, a careful analysis of the situation may develop quite another angle or issue. When deliberation among young men who have been given the advantage of education is brought into play, and their egosism in feeling that they can do something and escape from the penalties of their acts, enters into the situation, the probabilities are that their defense will break down. Then, too, their freedom from perturbation, their cold, calm indifference, will also break under the stress of public sentiment. It has been proved many times that criminals usually allow one or more loopholes that convict them, and it is quite likely that this will be brought out, too.

These cases are not infrequently studied by the psychologist, that is, the man who is trained in the study of conduct and behavior; and they would probably offer many suggestions for the psycho-analysts, although at present nothing is known about their Freudian attitude.



Dr. Barker, Professor of Clinical Medicine in Johns Hopkins University, made a very telling suggestion when he said: "If the public could be accurately informed of the prevalence of abnormal thought, feeling, and behavior in the United States, such indifference as now exists regarding prevention would become inconceivable. If the public fully realized how much insanity, mental deficiency, criminality, and incapacity for social effectiveness actually exists, and how easily much of these could be prevented by the adoption of wide measures that are practicable even in the present state of knowledge, one cannot but feel that the apathy would be displaced by activity and that a vigorous prophylactic campaign through education and legislation would be peremptorily demanded."

At this point it may be fitting to remark that in the recent letters on immigration by James A. Davis, Secretary of Labor, he considers this question broadly. He says: "You may believe in evolution, or you may not; you may believe in a literal interpretation of the Bible, or you may not. But if you will read any good textbook of American History and if you will read the wonderful story of Exodus in the Old Testament you will believe in the survival of the fittest." He goes on to say, further, that it was found that among early American pioneers it took from six to ten weeks to sail from Europe to America. The little ships were crowded tight. They were unsanitary, and there were no modern methods of detecting and controlling disease. Epidemics broke out frequently among the passengers, and thousands of bodies, history tells us, were thrown overboard—bodies not strong enough to stand the strain of the voyage; bodies unable to resist the attacks of disease. The more resistant, the stronger, the fitter men and women survived, to land on our shores. They began a serious struggle, and half of the Mayflower pilgrims died before that noble ship turned back to England. One-fifth of the pilgrims of 1629 died in their first battle with the wilderness. Then came the Indian massacres, and only the hardiest and those with physical courage survived that struggle. In spite of all this there were among the people who immigrated to this country condemned criminals who mixed human chaff with the wheat. Some 50,000 convicts from England were dumped on America before 1776, when our Revolution put a stop to this sort of "immigration." Consequently, a lot of poor stock who were weak-minded and who went wrong because they had not the qualities to go right were landed

here and dumped on us long ago, and the results are with us still. About the year 1760 there settled in the mountains of western Massachusetts a family of vagabonds, part hunter, part farmer, part fisher, who began to contribute their share to the population of America. The parents had eight children. Five of these migrated to New York. Their second generation numbered 13, the third 29, the fourth 70, the fifth 194, the sixth 397, the seventh 146, and the eighth has thus far produced 1 as a beginning; 784 members of this family have given us the following roll of social inferiority: 180 illegitimate children; 232 notably immoral women; 199 notably immoral men; 19 epileptics; 24 insane; 15 asylum orphans; and 40 in state prison and jail. New York State has spent \$89,000 in supporting, arresting, jailing, and custodially keeping members of the family. It has been conservatively estimated that its dead-loss cost to the community has been about \$270,000. This example has been followed many times by the undesirable and the unfit, who migrate to our shores and with the same ultimate outgrowth. Consequently, who can determine how many of them are throwbacks who have been at some time in the course of their lives inferiors or worse and have gone down to the lowest level of human development.

These statistics and examples of what has been brought to this country, as well as to other countries, leave an indelible mark and not infrequently it crops out in some manner suggestive of these recent crimes against society. Shall we ever be able to correct a condition of this sort, particularly with the physical and mental radicalism that is so prominent and conspicuous in the life of to-day?

## NEWS ITEMS

Dr. William P. Herbst, of the Mayo Clinic, has moved from Rochester to Minneapolis.

The American Dermatological Association held its annual session in the Twin Cities last week.

The South Dakota State Medical Association will hold its 1925 annual meeting in Sioux Falls.

Dr. Theodor Bratrud, of Warren, has returned from a tour of the Eastern hospitals and clinics.

Dr. Erling W. Hansen, of Minneapolis, was married to Miss Anna Ruth Eddy, also of Minneapolis, on June 4.

Dr. E. E. Novak, of New Prague, is spending the month of June in Chicago, doing postgraduate work in surgery.

The Minnesota State Tuberculosis Sanatoriums Association will hold their annual meeting in Thief River Falls on July 17.

Dr. J. E. Campbell, of South St. Paul, has gone to Europe for special work in Berlin and Vienna. He will be absent three months.

Dr. A. J. Courshon, of Winner, S. D., has opened a hospital, using the remodeled First National Bank building for hospital quarters.

The health authorities of Minneapolis desire to prohibit the sale of raw milk from untested cows, and will ask the City to take such action.

The new Community Hospital, of New Prague, was opened on June 1, by a public reception. The hospital is open to all physicians of good standing.

Dr. L. A. Sukeforth, Public Health Director of Duluth, recommends that people keep their back-yard standards as high as their front-yard standards.

Dr. W. H. Hengstler, who went to California in April, expecting to remain there, has returned to St. Paul and become associated with Dr. C. Eugene Riggs.

Miss Belle Anderson has resigned her position as superintendent of St. Olaf's Hospital at Austin, and has been succeeded by Miss Lucile Lommen, of the hospital.

The Division of Child Hygiene of the Minnesota State Board of Health is giving clinics in various parts of the state to expectant mothers and mothers of young babies.

Dr. H. H. Blaustone has moved from Isle to Minneapolis and has offices at 403 West Lake St. Dr. Blaustone is a graduate of the Medical School of the University of Minnesota.

Miss Hulda Thelander of the senior medical class of the University of Minnesota, which graduates this month, has received the highest marks gained by any medical student in the University in seven years.

The Olmsted County Board of Commissioners met at Rochester last month and voted to join Winona and Wabasha Counties in the maintenance of the Buena Vista Tuberculosis Sanatorium located at Wabasha.

In a baby clinic held at Aurora last month fifty-five babies were examined by Dr. L. E.

Doolittle, of Duluth. Twenty-four of these children needed surgical treatment and twenty-two needed medical treatment, and their parents were so advised.

The Tri-State Hospital Association of Iowa, Wisconsin, and Minnesota will hold its annual meeting in Madison, Wis., on June 25, 26 and 27. Dr. Walter E. List, Superintendent of the Minneapolis General Hospital, will be one of the chief speakers at the meeting.

The annual meeting of the Woman's Auxiliary of the St. Louis County Medical Society was held in Duluth last month, when the philanthropic committee reported that 91 articles had been made for inmates of charitable institutions, and a cash donation has been voted to send two girls to a summer camp.

The name of the editor of THE JOURNAL-LANCET appeared on the program for an address at the graduating exercises of the 1924 class of nurses from the Lincoln Hospital of Aberdeen, S. D. As he could not be present on account of work in court, Dr. R. L. Murdy, of Lincoln Hospital, gave the address.

Dr. Howard L. Sargeant, formerly of Dalton, but late of Rochester, has joined Drs. Sherping and Estrem, of Fergus Falls. Dr. Sargeant is a graduate of the Medical School of the University of Minnesota, and after practicing several years he spent nearly two years in the Mayo Clinic, specializing in internal medicine.

The Medical Short Course at the University of Minnesota, which ended last week, was attended by thirty-six physicians from five states, as follows: fifteen from Minnesota; seven from Iowa; six from North Dakota; four from South Dakota; and one from Wisconsin. A second course of two weeks will be given in September.

The Glen Lake Sanatorium, the tuberculosis institution of Hennepin County, has completed the last of its twelve buildings and has now a capacity of 600 patients. The home of Superintendent E. S. Mariette, one of the buildings just completed, is a handsome and commodious structure, richly deserved for the home of the superintendent.

Dr. Alvinza B. Cole, of Fergus Falls, died last week at the age of 76. Dr. Cole graduated from the New York Homeopathic Medical College with the class of '78 and began practice in Minnesota soon after graduation. He was prominent in political affairs for many years, and



served two terms in the State Senate. He was a candidate for the Legislature this year.

Dr. Otto W. Haugan, of Fergus Falls, died last month at the age of 57. Dr. Haugan was born in Norway and came to South Dakota when a mere lad. After graduating from the Red Wing (Minn.) Seminary he became a teacher and was prominent in educational matters throughout his life. He graduated from Jefferson Medical College with the class of '02, and soon began the practice of medicine in Minnesota at Fergus Falls.

#### **Fine Opening for a Physician in North Dakota**

An opening for an A1 physician and surgeon in western North Dakota with excellent hospital facilities. Address 103, care of this office.

#### **Minneapolis Office Space For Rent**

In the Metropolitan Bank Building. Separate office and share reception room with a dentist and physician. For particulars telephone Geneva 5441.

#### **Experienced Laboratory Technician Wants Position**

In a hospital for a private laboratory. Very high grade work guaranteed, with best of references. Several years experience. Address 109, care of this office.

#### **X-Ray Machine for Sale**

A Standard oil-transformer, big type x-ray machine, just like new, for sale at a reasonable price. Oil transformer brand new. Address 93, care of this office.

#### **Small Hospital Equipment for Sale**

Complete equipment of a 12-bed hospital is offered for sale. Equipped for general service, surgery, and obstetrics. Address inquiries to P. O. Box 135, Elk River, Minn.

#### **An X-Ray Technician Wants Work In Twin Cities**

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### **Temporary Work Wanted**

By a competent physician licensed in Minnesota and North Dakota. Can give the best of references. Ten years experience; available at once. Address 79, care of this office.

#### **Opening for Young Man**

Correspondence solicited with a recent graduate or preferably a physician with from two to five years experience. Specialty, obstetrics and gynecology. Address 98, care of this office.

#### **Standard X-Ray Machine for Sale**

Have an outfit large enough to do all kinds of x-ray work, used four years. Is in A1 condition. Coolidge tube and supplies go with it; tube stand, etc. Address S. E. Reeves, M.D., Eagle Bend, Minn.

#### **Physician Wanted In North Dakota**

A good town in North Dakota in a prosperous farming community, mostly Norwegian people, wants a physician. Position will pay \$5,000 a year, and collections are good. Address 104, care of this office.

#### **Specialist Wanted**

We have a fine opening for an eye, ear, nose, and throat man; also for a man in obstetrics, children's diseases, and internal medicine to join a group, and simply share the waiting-room cost. Town of 30,000, west of the Twin Cities. Address 102, care of this office.

#### **Salaried Position Open**

A Minnesota institution desires a man of good reputation. Work will be very light and will be confined to the institution. Will pay a salary of \$200 and room and board for himself and wife, if married. The board and accommodations are those of first-class hotel. Address 106, care of this office.

#### **Physician Wanted in North Dakota**

A young man preferred. For Center, N. D., the County-seat of Oliver County. No doctor now in County. Center has three churches and two banks. It is an up-to-date town. As health officer the doctor receives \$25 a month. Address Robert Dunn, Center, N. D.

#### **Office Furniture and Location for Sale**

Being obliged to leave Minneapolis on account of health, I will sell my office furniture, with or without lease of office, for \$350. It is in excellent condition and would cost at least \$600. The location is south on Chicago Avenue. Address 99, care of this office.

#### **Physician Wanted**

To take my established Minnesota practice for invoice price of modern equipment. Fine town of 1,000; excellent gravel roads; sound dairying and farming community; large consolidated schools with gymnasium; collections excellent; modern offices with dentist. Give qualifications. I am going to specialize. Address 107, care of this office.

#### **Practice For Sale In South Dakota**

General practice with opportunity for surgery. Modern town of over one thousand in heart of South Dakota corn belt; hospital; large territory; good collections; one place where doctors have made money. Protestant, Masonic, and some think a K. K. K. community. Reason for sale, moving to city. Some cash required, balance on terms. Address 108, care of this office.

#### **Minneapolis Offices for Rent**

Very desirable accommodation for a suburban physician wishing special office hours downtown. Choice of several rooms, whole or part time, in a building exclusively for physicians and dentists. Reception room nurse, laboratory technicians, etc., in attendance. Address 101, care of this office, or call at 821 Besse Building.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 13

MINNEAPOLIS, JULY 1, 1924

Per Copy, 10c  
A Year, \$2.00

## TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION—FORTY-THIRD ANNUAL MEETING

### OFFICERS—1924-25

#### PRESIDENT

R. L. MURDY, M.D. ....Aberdeen

#### FIRST VICE-PRESIDENT

W. R. BALL, M.D. ....Mitchell

#### SECOND VICE-PRESIDENT

T. F. RIGGS, M.D. ....Pierre

#### THIRD VICE-PRESIDENT

S. M. HOHF, M.D. ....Yankton

#### SECRETARY-TREASURER

R. D. ALWAY, M.D. ....Aberdeen

#### COUNCILOR—FIRST DISTRICT

J. F. D. COOK, M.D. ....Langford

#### COUNCILOR—SECOND DISTRICT

H. W. SHERWOOD, M.D. ....Doland

#### COUNCILOR—THIRD DISTRICT

J. R. WESTABY, M.D. ....Madison

#### COUNCILOR—FOURTH DISTRICT

A. A. McLAURIN, M.D. ....Pierre

#### COUNCILOR—FIFTH DISTRICT

L. N. GROSVENOR, M.D. (Clerk)....Huron

#### COUNCILOR—SIXTH DISTRICT

FREDERICK TREON, M.D. (Chairman) Mitchell

#### COUNCILOR—SEVENTH DISTRICT

R. W. MULLIN, M.D. ....Sioux Falls

#### COUNCILOR—EIGHTH DISTRICT

J. P. ISAACS, M.D. ....Freeman

#### COUNCILOR—NINTH DISTRICT

F. W. MINTY, M.D. ....Rapid City

#### COUNCILOR—TENTH DISTRICT

J. C. WATERMAN, M.D. ....Burke

#### COUNCILOR—ELEVENTH DISTRICT

N. K. HOPKINS, M.D. ....Arlington

#### COUNCILOR—TWELTH DISTRICT

PERCY D. PEABODY, M.D. ....Webster

DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

G. G. COTTAM, M.D. ....Sioux Falls

#### ALTERNATE

J. C. WATERMAN, M.D. ....Burke

### HOUSE OF DELEGATES

#### ABERDEEN DISTRICT

J. F. ADAMS, M.D. ....Aberdeen

M. C. JOHNSTON, M.D. ....Aberdeen

J. E. BRUNER, M.D. ....Frederick

#### WATERTOWN DISTRICT

J. B. VAUGHN, M.D. ....Castlewood

#### MADISON DISTRICT

L. JORDAN, M.D. ....Madison

#### PIERRE DISTRICT

H. B. MARTIN, M.D. ....Harrold

#### HURON DISTRICT

B. H. SPRAGUE, M.D. ....Huron

#### MITCHELL DISTRICT

T. B. SMILEY, M.D. ....Mt. Vernon

A. H. HOYNE, M.D. ....Salem

#### SIOUX FALLS DISTRICT

S. A. KELLER, M.D. ....Sioux Falls

S. A. DONAHOE, M.D. ....Sioux Falls

#### YANKTON DISTRICT

L. F. BEALL, M.D. ....Irene

D. S. KALAYJIAN, M.D. ....Parker

#### BLACK HILLS DISTRICT

J. W. FREEMAN, M.D. ....Lead

#### ROSEBUD DISTRICT

R. J. QUINN, M.D. ....Winner

#### KINGSBURY COUNTY DISTRICT

J. B. DICKEY, M.D. ....Iroquois

#### WHETSTONE VALLEY DISTRICT

H. G. HARRIS, M.D. ....Wilmot



## COMMITTEES

## COMMITTEE ON CHILD WELFARE

CLARA E. HAYES, M.D. (Chairman)....Waubay  
 E. A. PITTENGER, M.D.....Aberdeen  
 LYLE HARE, M.D.....Spearfish  
 W. E. DONAHOE, M.D.....Sioux Falls

## COMMITTEE ON EDUCATION

S. M. HOHF, M.D. (Chairman).....Yankton  
 T. B. SMILEY, M.D.....Mt. Vernon  
 N. J. NESSA, M.D.....Sioux Falls

## COMMITTEE ON CONSERVATION OF VISION

J. G. PARSON, M.D. (Chairman).....Sioux Falls  
 H. C. PEABODY, M.D.....Webster  
 A. EINAR JOHNSON, M.D.....Watertown  
 J. M. WALSH, M.D.....Rapid City

## COMMITTEE ON HOSPITALS

G. H. TWINNING, M.D. (Chairman)....Mobridge  
 B. A. BOBB, M.D.....Mitchell  
 H. J. BARTON, M.D.....Watertown

## COMMITTEE ON WORKMEN'S COMPENSATION

R. D. ALWAY, M.D.....Aberdeen

## PLACE OF NEXT MEETING, SIOUX FALLS

PROCEEDINGS OF THE HOUSE OF  
 DELEGATES OF THE SOUTH  
 DAKOTA STATE MEDICAL  
 ASSOCIATION

FIRST SESSION—TUESDAY, MAY 20, 1924

The first meeting of the House of Delegates was called to order immediately after luncheon, at the Hotel Widman, Mitchell, by the President, Dr. F. E. Clough, of Lead.

The Secretary called the roll and announced that a quorum was present, and the President declared the House duly constituted for the transaction of business.

The following Delegates were present:

Dr. F. E. Clough .....Lead  
 Dr. J. F. D. Cook.....Langford  
 Dr. J. F. Adams .....Aberdeen  
 Dr. J. B. Vaughn .....Castlewood  
 Dr. H. W. Sherwood .....Doland  
 Dr. C. H. R. Hovde .....Madison  
 Dr. A. A. McLaurin .....Pierre  
 Dr. H. B. Martin .....Harrold  
 Dr. D. H. Sprague .....Huron  
 Dr. L. N. Grosvenor .....Huron  
 Dr. Fred Treon .....Chamberlain  
 Dr. T. B. Smiley .....Mt. Vernon  
 Dr. F. I. Putnam .....Sioux Falls  
 Dr. S. A. Donahoe .....Sioux Falls  
 Dr. J. G. Parsons .....Sioux Falls  
 Dr. M. A. Stern .....Sioux Falls  
 Dr. J. P. Isaac .....Freeman  
 Dr. L. F. Beall .....Irene  
 Dr. F. W. Minty .....Rapid City  
 Dr. J. W. Freeman .....Lead  
 Dr. J. B. Dickey .....Iroquois  
 Dr. R. D. Alway .....Aberdeen

The Secretary announced that 330 members had renewed their membership for the year, and gave the membership by counties. (See the Roster.)

## THE OFFICIAL ORGAN

The President then introduced Dr. W. A. Jones, of Minneapolis, who addressed the members briefly regarding the publication of the proceedings of the Association in THE JOURNAL-LANCET.

Following Dr. Jones' remarks the President introduced Dr. F. L. Adair, of Minneapolis, who addressed the House concerning the merits of *Minnesota Medicine*.

Dr. Parsons moved that the Association continue their present arrangement with THE JOURNAL-LANCET, and that it continue to be the official organ of the Association. Motion seconded.

Dr. Smiley, representing the Sixth District, said that at their last meeting he was instructed to vote for a change.

Dr. Isaacs, representing the Eighth District, said that he had not been officially instructed, but personally he was in favor of standing by THE JOURNAL-LANCET. One reason for this was that they might receive more and prompter attention than if they adopted the *Minnesota Medicine*.

Dr. Adams, Dr. McLaurin, Dr. Bostrom, and Dr. Sprague expressed themselves as in favor of continuing the present arrangement.

Dr. Parsons' motion was put to a vote and carried.

## ASSOCIATION DUES

The Secretary then introduced the subject of State Dues and said that there was approximately \$2,700.00 in the treasury. As there had been some criticism about the size of the dues, he thought it might be well to discuss the question in order to ascertain the opinion of the Delegates.

In order to get the matter before the House for discussion, Dr. Alway moved that the By-Laws be amended to make the dues \$4.00 annually, instead of \$6.00, as at present, this to be laid on the table (in accordance with the Constitution and By-Laws) until the next meeting of the House. Motion seconded.

This question was discussed by the following:

Dr. Sherwood, who believed the dues should be kept at \$6.00 annually, as it is much better to have a surplus on hand than to be short of funds.

Dr. Treon, who thought that when the dues were raised it was with the understanding that

a full-time secretary was to be arranged for. He did not see any reason for piling up money in any bank just for the sake of having it, and he believed it might make a difference in securing new members.

Dr. Vaughan, who saw no need of making a change and thought it would be well to let the matter rest for at least another year, for being out of money all the time was very inconvenient.

Dr. Parsons, who said that his Society favored the abolition of a sinking fund, that the State dues might be reduced.

Dr. Smiley, who said that at the last meeting of the Sixth District Society they passed a resolution favoring a reduction of the State dues.

Dr. Freeman, who called attention to the fact that the California dues amount to \$22.00, including the County and State Society dues.

#### THE GROWTH OF CULTS

Secretary Alway then read a letter from the Yankton District Society, requesting that some action be taken in regard to the growth of the various cults related to medicine, and the President requested an expression of opinion regarding this matter.

Dr. Treon said that he thought the medical profession had given the cults sufficient advertising and that they should be left alone.

Dr. Parsons asked what was the use of making resolutions in regard to cults when they did not use the machinery they have to do business with. He thought it should be made the duty of the State Licensing Board to institute prosecution for violation of the Medical Practice Act, and that until this was done there was not much use in expressing disapproval.

Dr. Alway called attention to the fact that osteopaths and chiropractors are given license to use narcotics. He had attempted to investigate this through the office of the Attorney-General, but had received no reply.\* He had seen a copy of a prescription for morphine, calling for one grain, but without any directions whatever, yet the druggist filled.

#### LETTER FROM THE ATTORNEY-GENERAL

May 28, 1924.

Dr. R. D. Alway,  
Vice President, State Board of Health,  
Aberdeen, S. D.

Dear Doctor:

You have submitted the following inquiry:

"I understand that one of your predecessors made a ruling that osteopaths and chiropractors are eligible under our Federal Narcotic Law to

prescribe narcotics. As I remember, both osteopaths and chiropractors do not teach materia medica or therapeutics in their schools and further claim that they do not believe in medicine. Will you kindly give me some information in regard to this and your opinion of the same?"

I find no opinion on this subject among the official opinions of my predecessors.

Under the federal law (Compiled Statutes 6287g) the collector of internal revenue registers on proper application all who are by the State law permitted to dispense narcotics.

*Stearns vs. Rose*, 282, Fed. 336.

Under the South Dakota law (Section 7858 R. C., as amended by Chapter 191, Laws of 1923) opium, coca leaves, or any compound manufacture salt, derivative or preparation thereof, may be dispensed and administered to a patient by a duly licensed and practicing physician within this state, in the course of such physician's professional practice only. Such drugs may be sold by registered pharmacists to a consumer only "in pursuance of a written prescription issued by a duly licensed and practicing physician," or may be sold or dispensed by any wholesale druggist, dealer, or jobber within the state to registered pharmacists owning and conducting retail drug stores, or by such registered pharmacists to a duly licensed and practicing physician, dentist or veterinarian within the state.

The question of whether or not osteopaths and chiropractors, or either of them, may prescribe or dispense the habit-forming drugs referred to, depends upon whether or not the term, "duly licensed and practicing physician" includes osteopaths and chiropractors.

Chiropractors are licensed to practice chiropractic. Since chiropractic is defined by Section 8 of Chapter 143, Laws of 1921, to be "the adjustment by hand of the articulation of the human spine and other incidental adjustments according to the science of chiropractics," it seems apparent that chiropractors are not authorized to dispense or administer habit-forming drugs under the limited license granted them. It is therefore, my opinion that a chiropractor is not a duly licensed and practicing physician" within the meaning of that phrase as used in Section 7858.

Osteopaths are licensed to practice osteopathy, and are referred to as "osteopathic physicians" in Section 7722 and Section 7724 R. C., the last section providing in part:

"The certificate provided for in the second preceding section shall not authorize the holder thereof to perform major operations; his practice shall be limited to the methods of practice as taught in the standard colleges of osteopathy."

If the methods of practice as taught in the standard colleges of osteopathy include and contemplate the prescribing and administering of the drugs referred to here, osteopaths are duly licensed and practicing physicians within the terms of the statute; otherwise, they are not. The question of fact involved is one which I am not qualified to answer for you.

Yours truly,

(Signed) BUELL F. JONES,  
Attorney-General.

\*The reply of the Attorney-General to Dr. Alway's inquiry was received after the meeting of the Association.



Dr. Stern said that he had given this matter considerable thought and had reached the conclusion that there is only one way to counteract the cults, and that is by education of the people by means of proper propaganda.

Dr. Kalajian thought it would not do any good to do this. In his community there is an osteopath who gives medicine, prescribes morphine, and performs tonsillectomies. The druggist refused to refill a prescription for him, but he wrote to Pierre and then the druggist had to fill it. Chiropractors do the same thing. He thought it a surprising fact that so many prominent men are followers of the cults and that they are very ignorant concerning medical matters. He believed that physicians should take a hint from these fellows and seek more publicity for the benefit of the profession.

Dr. Westaby called attention to the chiropractic law which says that no chiropractor shall treat any infectious or contagious disease. This had been called to the attention of Attorney-General Payne, who said the law simply meant that they shall regard acute contagious and infectious diseases as other practitioners, and that it is all right for them to sign death certificates. He was at present under a judgment of \$1,500.00 because he investigated the cause of a death which was due to tuberculosis and which a chiropractor had been treating for bowel trouble. They sued him for giving the matter publicity, and the judge upheld the chiropractor.

On motion, this matter was tabled.

#### INVESTIGATION OF HOSPITALS OF THE VETERANS' BUREAU

Secretary Alway presented a letter from the Disabled American Veterans of the World War, asking if the South Dakota State Medical Association would be in a position to furnish an expert to assist in the investigation of all hospitals established by the Veterans' Bureau.

On motion of Dr. Stern this matter was tabled.

#### THE WORKMAN'S COMPENSATION FEE BILL

Dr. Parsons presented a communication from the Seventh District regarding the present workman's compensation fee table, and another regarding the National Prohibition Law, which requested that some steps be taken by the Association to secure a change in the present State laws regarding prohibition to make them conform with the Federal law.

The President asked for an expression of

opinion regarding the fee table, and the matter was discussed by the following:

Dr. Stern, who thought that some definite action should be taken on this matter. Some states put no limit on the amount that should be expended for an employee. South Dakota at present stipulates \$150.00, and he thought this should not be less than \$300.00.

Dr. Clough, who said it had been computed, he thought on an absolutely true basis, that the industries have to pay at least 60 per cent of the claims against them because of the personal carelessness of the employees. If the industries have to pay 60 per cent of such claims, he believed they would not stand for increasing the amount of damages in the other cases. The people who have to pay the compensation are all against any change in the present law. His company gives unlimited service, not limited to \$150.00, but the real organizations interested are the insurance companies and the employers' associations, which include companies employing men all over the state. He thought it would be opening up a bomb-shell to open up the medical and surgical fee question. If it were not for the Employer's Liability Law they would get nothing out of 50 or 60 per cent of the claims out of which they now get a reasonable fee. Many concerns, he was convinced, would carry their own insurance if the fees were raised. The fee table was made up on an average of practically all the fee tables used by neighboring states, and he doubted the wisdom of making any change.

Dr. Treon, thought it well to let well enough alone.

Dr. Westaby, who said that in discussing the matter with Mr. Travis he had stated that the amount paid by the insurance company had nothing to do with bringing action against the patient for anything above that sum which might be due.

Dr. Stern, who thought the men handling industrial cases, saw the injustice of the law better than some of the others. The present fee of \$150.00 will not pay half of the necessary expenses. He thought the hospitals should at least be recompensed for the patient's board and care, and he believed that South Dakota had the lowest limit of any state. He wished some definite action to be taken on the matter and moved that the Association go on record as endorsing a movement to raise the maximum amount for hospital and medical and surgical care from \$150.00 to \$300.00.

Motion seconded.

Dr. Alway suggested that it might be well to divorce the two, saying a certain sum for medical care and a certain sum for hospital fee, making the maximum for each the same amount, \$150.00.

Following this the motion was withdrawn.

#### THE PROHIBITION LAW

The President then called attention to the second communication, regarding the prohibition law, and said he did not think it could be adequately discussed in the brief time remaining before adjournment, and he suggested that it be postponed until the next meeting.

Dr. Stern requested the privilege of discussing it briefly, and stated that the National law provides for the legitimate use of alcohol, while the State law does not. He thought it rational to draw up a resolution whereby the State law would comply with the requirements of the National law. In their drug-store they are at present absolutely unable to get alcohol legally to use in making tinctures.

Another thing to which he took exception was the attitude of the State authorities toward one who holds a State license, which made one feel that he should apologize for having it.

Further discussion of this question was postponed.

#### THE UNRESTRICTED SALE OF LYE

Dr. Parsons brought up the subject of the proposed lye legislation, and spoke of the dangers that come from the unrestricted sale of lye for household purposes. He asked that the State Association go on record as favoring the law introduced by Senator Pepper providing for a distinctive label.

Dr. Alway stated that he had already communicated with our Senators and Representatives in Washington and had received favorable replies from them.

#### APPOINTMENT OF COMMITTEES

*Nominating Committee.*—The President appointed a Nominating Committee consisting of Dr. Adams, chairman, and Drs. Sherwood, McLaurin, Sprague, Smiley, Donahoe, Isaacs, Freeman, Bostrom, and Harris.

*Necrology Committee.*—The President also appointed a Committee on Necrology consisting of Drs. Grosvenor, Treon, and Isaacs.

The Secretary called a meeting of the Board of Councilors immediately following the adjournment of the House of Delegates.

On motion, the House of Delegates adjourned at 2:00 P. M. to reconvene at 12:30 P. M. on Wednesday.

#### SECOND SESSION—WEDNESDAY, MAY, 21, 1924

The second meeting of the House of Delegates was called to order immediately after luncheon, at the Hotel Widman, Mitchell, by the President, Dr. F. E. Clough, of Lead.

The Secretary announced that a quorum was present and the President declared the House duly constituted for the transaction of business.

Second meeting of House of Delegates.

The following Delegates were present:

Dr. F. E. Clough	.....Lead
Dr. J. F. D. Cook	.....Langford
Dr. J. F. Adams	.....Aberdeen
Dr. J. B. Vaughn	.....Castlewood
Dr. H. W. Sherwood	.....Doland
Dr. C. H. R. Hovde	.....Madison
Dr. L. N. Grosvenor	.....Huron
Dr. Fred Treon	.....Chamberlain
Dr. F. I. Putnam	.....Sioux Falls
Dr. J. P. Isaac	.....Freeman
Dr. F. W. Minty	.....Rapid City
Dr. S. A. Donahoe	.....Sioux Falls
Dr. W. F. Keller	.....Sioux Falls
Dr. M. A. Stern	.....Sioux Falls
Dr. H. B. Martin	.....Harrold
Dr. D. G. Sprague	.....Huron
Dr. T. B. Smiley	.....Mt. Vernon
Dr. J. W. Freeman	.....Lead
Dr. J. B. Dickey	.....Iroquois
Dr. R. D. Alway	.....Aberdeen

The Secretary read the minutes of the preceding meeting, which were approved as read.

#### THE GORGAS MEMORIAL

The Secretary then presented a letter from Dr. Franklin Head Martin, Chairman of the Board of Directors of the Gorgas Memorial, asking for endorsement by the Association of the following resolution:

WHEREAS, the life and achievements of the late William Crawford Gorgas have been to our members an inspiration to service for humanity, and

WHEREAS, the Gorgas Memorial Institute contemplates the establishment in his memory of a living, working memorial in the form of:

(a) A Research Institute at Panama for the study, prevention and cure of tropical diseases; and

(b) The development of a national educational campaign under the supervision of the scientific medical profession for the purpose of improving and protecting the health of people everywhere, therefore be it

RESOLVED, in consideration of these facts, the South Dakota State Medical Association, assembled at its



annual convention at Mitchell, May 20 and 21, hereby heartily endorses the plan to memorialize William Crawford Gorgas in the manner contemplated by the Gorgas Memorial Institute, not only because it will constitute a worthy recognition of the character and achievements of our late colleague, but will be in effect a memorial to the achievements and importance of medical science in world progress.

Dr. Alway moved the adoption of this resolution.

Seconded and unanimously carried.

#### FEE REDUCTION

The Secretary then introduced the question of the proposed amendment to Article XI of the Constitution, in regard to reducing the dues from \$6.00 per capita per annum to \$4.00 per capita, making the Article read:

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$4.00 per capita per annum for dues to State Association except on a four-fifths vote of the Delegates present.

He also moved the adoption of this amendment to take effect in 1925.

Motion seconded by Dr. Putnam and carried.

#### REPORT OF NOMINATING COMMITTEE

Dr. Adams, chairman, reported that the Committee met with eight members present, the absentees being Drs. McLaurin and Harris. The report was as follows:

The Committee recommends that the invitation to meet in Deadwood the first week in August, 1925, be accepted.

For officers, the Committee recommends that the Vice-Presidents be advanced one place, but for the position of Third Vice-President we were deadlocked on Dr. Hopkins, of Arlington, and Dr. S. M. Hohf, of Yankton.

For Councilors we recommend for re-election in the Fifth District, Huron, Dr. L. M. Grosvenor, for the Sixth District, Mitchell, Dr. Frederick Treon; for the Seventh District, Sioux Falls, Dr. R. W. Mullen; for the Twelfth District, Whetstone Valley, Dr. Percy D. Peabody.

Dr. Vaughn moved that the report of the Nominating Committee be accepted.

Seconded and carried.

The names of the two gentlemen proposed for Third Vice-President were then balloted upon, and the President appointed Drs. Stern and Donahoe as tellers.

Dr. Hopkins received 9 votes and Dr. Hohf 10 votes, and Dr. Hohf was declared duly elected Third Vice-President.

Dr. Vaughn moved that the Secretary cast the unanimous ballot of the House for the other

officers recommended by the Nominating Committee.

Seconded and carried, and the Secretary did so cast the vote.

#### PLACE OF 1925 MEETING

The President then asked if there were other invitations for the 1925 meeting.

Dr. F. I. Putnam said that some months ago he had received a letter from Dr. Freeman requesting him to use his influence to get the 1925 meeting for Deadwood, and that he was willing to do so, but inasmuch as the program at this meeting was such a success it had been thought advisable to continue the meetings where plenty of clinical material is available. Therefore, he nominated Sioux Falls as the meeting place for 1925.

Deadwood and Sioux Falls were then balloted upon, and of 19 votes cast Sioux Falls received 11, and was declared the meeting place for 1925.

#### UNFINISHED BUSINESS

##### DOUBLE ENFORCEMENT OF PROHIBITION LAW

Under this head Dr. Stern brought up the question of the double enforcement of the prohibition law in South Dakota, the State law and the Federal law, and after some explanation moved that the South Dakota State Medical Association, as represented by the House of Delegates, go on record as favoring a change in the State Prohibition Act to make it conform with the Federal Prohibition Act, and that the State Secretary be instructed to correspond with the secretaries of the component societies and send them a copy of this resolution, requesting their aid in securing the requisite number of signers to secure a referendum.

Seconded by Dr. Donahoe.

The question was then discussed by the following:

Dr. Cook, who asked why the matter should not be taken to the State Druggists Association, instead of to this Association, since Dr. Stern was apparently more interested in the making of tinctures than in anything else, and that it was merely the druggists' needs that he was solicitous about.

Dr. Sherwood, who stated that under the State law druggists are licensed to secure alcohol for making drugs.

Secretary Alway, who stated that the druggist had to put up a bond in order to get alcohol to make tinctures.

Dr. Sherwood, who said that his objection to having the law changed was that it would throw

the responsibility on the medical profession as to whether the people in the community could abuse the law or not. If it was known that the druggist had a right to get alcohol and that the doctor had a right to prescribe it there would be the same trouble that was experienced before the law went into effect.

Dr. Stern, who stated that there were certain provisions in the law which prevent their securing alcohol in a legal way for compounding tinctures in their drug department in connection with the Sioux Falls Clinic. It is also impossible to secure alcohol for the laboratory work in a legal way. He thought most of those present believed that there are times when it is advisable to prescribe alcohol in cases of sickness, which cannot be done under the present situation. He thought the few who do not believe it is valuable should not dictate to those who do. If the State law was made to conform with the Federal law they would still have to take out licenses to prescribe, but that was well regulated.

Dr. Isaacs, who thought that in some instances, particularly in pneumonia, brandy and alcohol are of value.

Dr. Treon, who endorsed Dr. Isaacs remarks, and who thought the present State law should be altered so that they could save the lives of patients who need alcohol and not be made criminals by doing so.

Dr. Putnam, who said it was possible to get a State and a Federal permit at present so that one could write prescriptions and have them filled. He thought the State law was "a darned good law," and he wished to go emphatically on record as against any change in it.

Dr. Stern, who said that getting the permits did not always hold good, and he thought it unnecessary to have double enforcement of the prohibition law.

Following the discussion Dr. Stern's motion was put to a rising vote and lost.

#### REPORT OF THE CHILD WELFARE COMMITTEE

Two phases of child welfare have been touched upon during the year.

1. Physical examinations and advice regarding the means of correction of physical defects and the improvement of nutrition and posture.

2. Securing surgical treatment for indigent crippled children.

The first mentioned work consisted of the physical examination of 168 boys and girls of the Farn Clubs at the State Fair last September. The children ranged in age from ten to eighteen years and were the winners of prizes for livestock, poultry, and various other exhibits at their county fairs.

The work was done by the State Division of Child Hygiene of the State Board of Health, at the request of the State College, at Brookings, with the sanction of the President of the State Medical Association. Letters were written to all doctors of Beadle and contiguous counties regarding the scope and purpose of the work. Many prompt responses were received from the doctors who volunteered their services. The State Board of Health paid the travelling and hotel expenses of those who helped, and the Fair Board gave them admission tickets and press passes to the activities on the grounds. We worked during the forenoons of four days. Twelve practising physicians, four nose and throat specialists, three eye specialists, and five dentists gave their time, some giving two half days each. The work was highly commended by the State College, and the announcement of its results was given a prominent place on the program at which the State Fair awards were made. The faculty of the Extension Division has requested that we repeat the work this year, and, if possible, to make it a permanent part of the Agricultural College program.

Fifty-nine of the eighty-five girls examined and thirty of the eighty-two boys have reported the correction of their physical defects, and other members of the families of these children have had physical examinations and treatment which were prompted by the Boys and Girls Club clinic.

If the State Medical Association approves and desires to sponsor this work at the State Fair this year, suggestions as to some manner of expediting the examinations will be greatly appreciated. Perhaps those who have had army experience in examining large numbers could make some valuable suggestions.

Before the work for crippled children was begun, a letter was sent to each physician in the state requesting the names of indigent crippled children in his community. Dr. H. I. King, of Aberdeen, and Dr. H. D. Sewell, of Huron, volunteered to do the surgical work without charge for the children of their district. Dr. G. E. Van Denmark, of Sioux Falls, volunteered to help with certain types of cases and Dr. Emil S. Geist and Dr. Carl C. Chatterton, orthopedic specialists of Minneapolis and St. Paul, offered to take cases for treatment from any part of the state without charge. In each instance the parents have been required to sign an affidavit stating that they were financially unable to obtain proper treatment for their children and to state their preference of the surgeons who would do the work. The Division of Child Hygiene pays all hospital charges, and the families or some local organization pays the transportation.

From among the operable cases reported by the physicians of the state five have been operated on, four by Dr. Geist and one by Dr. King. Arrangements have been completed for four more cases, three of which will be done by Dr. Sewell and one by Dr. Geist. The cases selected for treatment so far have been club feet, extreme bowed legs and a large contracting scar of the neck.

The fund for crippled children is limited, but is still sufficient to take care of several more cases. While the State Medical Association as an organi-



zation has not assisted with this work, it has been done with the knowledge of every physician in the state and the assistance and co-operation of most of them.

If through the Association we could be notified of the most needy of these indigent crippled children, and those who could be benefited most by surgical treatment, it would be a great advantage.

—CLARA E. HAYES, M.D.

Chairman Child Welfare Committee,  
South Dakota State Medical Association.

#### REPORT OF COMMITTEE ON NECROLOGY

Dr. Grosvenor, chairman, stated that he had been able to secure information regarding only one member of the Association who had died during the year, Dr. Lee B. Prouty, of Conde, who died in October, 1923. He had recently received a letter from his wife, who was living in Casselton.

On motion duly seconded and carried this report was accepted as submitted.

#### ELECTION OF A COUNCILOR

The Secretary called attention to the fact that no Councilor had been elected for the Madison District.

Dr. J. R. Westaby, of Madison, was nominated for this position and was unanimously elected.

#### THE NEW PRESIDENT, DR. MURDY

Dr. Clough then introduced the newly elected President, Dr. R. L. Murdy, of Aberdeen, and expressed his thanks to the Delegates for their support and assistance during the year.

Dr. R. L. Murdy: I thank you for this honor. I feel that if I follow in the steps of our retiring President, Dr. Clough, I will have to step fast. I think he has established a pretty high order of things, and I hope the work we have been following here will conform to the good plans he has established this year.

#### THANKS TO DR. J. L. STEWART

Dr. Vaughn called attention to the little book, "The Medical Pilgrim's Progress," which had been sent to the Association by Dr. J. L. Stewart, and moved that the House of Delegates extend a vote of thanks to Dr. Stewart for his instructive and interesting little book.

Motion seconded and unanimously carried.

Dr. Freeman said that in talking with Dr. Stewart he had requested him to get the opinion of the doctors who received the little book as to whether or not it was suitable to give to laymen.

No action was taken.

#### TYPE OF NEXT MEETING

Dr. Clough asked if the House of Delegates wished to go on record regarding the type of

meeting for 1925, or whether this should be left to the Program Committee.

It was the consensus of opinion that it should be left to the Program Committee.

#### REPORT OF THE SPAFFORD MEMORIAL COMMITTEE

The Secretary presented a report from Dr. Cottam regarding the Spafford Memorial, and moved that the report be accepted and the Committee continued, letter of Dr. Cottam follows:

Dr. R. D. Alway,  
Aberdeen, S. D.

Dear Dr. Alway:

I have no final report to present on the Spafford Memorial, but I can say at this time that the pictures have been finished and paid for. The large one is hung in the Capitol at Pierre and the small one given to Mrs. Spafford, while there remains on hand a balance of over \$300.00 to pay for the bronze tablet which is to be placed either in Flandreau or at the State University according to Mrs. Spafford's wishes.

Respectfully,

G. G. COTTAM, M.D.,  
Chairman.

The Secretary called a meeting of the Board of Councilors immediately after adjournment, and on motion the House of Delegates adjourned at 1:45 P. M., *sine die*.

### PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

#### FIRST DAY—TUESDAY, MAY 20

The forty-third annual meeting of the South Dakota State Medical Association was called to order at the Metropolitan Theatre, Mitchell, on Tuesday, May 20, 1924, at 9:50 A. M., by the President, Dr. F. E. Clough, of Lead.

The President announced that the entire program was to consist of dry clinics and that there would be no discussion, but that the clinicians would be glad to answer any questions that the members of the Association cared to ask.

Dr. Walter D. Sheldon, Chief of the Department of Nervous Diseases, Mayo Clinic, Rochester, Minnesota, gave a Clinic on "The Nervous System," and presented two cases of postdiphtheritic paralysis and one of tabes dorsalis.

Dr. Arthur D. Dunn, formerly Professor of Medicine, Creighton University, Omaha, Nebraska, gave a clinic on "Diseases of the Heart," and presented seven cases.

On motion the meeting adjourned at 12:20 to reconvene at 2:00 P. M.

## FIRST DAY—AFTERNOON SESSION

The afternoon session of the first day was called to order at the Metropolitan Theatre, Mitchell, at 2:00 o'clock, by the President, Dr. F. E. Clough.

Dr. J. S. Pritchard, President of the Mississippi Valley Tuberculosis Association, Battle Creek, Michigan, gave a clinic on "Chest Conditions Simulating Tuberculosis," illustrated by lantern slides.

Dr. J. D. Adamson, Medical Department of the University of Manitoba, Winnipeg, gave a clinic on "The Diagnosis of Pulmonary and Joint Tuberculosis," illustrated by lantern slides, and presented two patients.

Dr. E. C. Rosenow, Chief of the Department of Experimental Medicine, Mayo Clinic, Rochester, Minnesota, gave a clinic on "The Selectivity of Bacteria for the Nervous System," illustrated by lantern slides.

Dr. W. R. Ball, Chairman of the Committee on Arrangements, announced that one-fifth of all the physicians in the state were present at the meeting, and stated that the Rush Alumni dinner would be held at the Hotel Widman at 6:30.

On motion the meeting adjourned at 5:15 to reconvene at 8:00 P. M.

## EVENING SESSION

The evening session of the first day was called to order at the Metropolitan Theatre, Mitchell, at 8:15, by the President, Dr. F. E. Clough.

Preceding the scientific program the Girls' Glee Club of the Mitchell High School gave three vocal selections.

Dr. F. W. Schlutz, Head of the Department of Diseases of Children of the University of Minnesota, Minneapolis, then addressed the audience on "Child Welfare."

Mrs. Doctor Roost, of Sioux City, Iowa, then favored the audience with two solos and several encores.

Dr. E. C. Rosenow, Mayo Clinic, Rochester, Minnesota, spoke on "The Relation of Experimental Medicine to Present-Day Life," and illustrated his talk with lantern slides.

Dr. J. S. Pritchard, President of the Mississippi Valley Tuberculosis Association, Battle Creek, Michigan, delivered an address on "Rollier's Work with Sunlight and Sanatorium Treatment Combined with Surgery, among the Swiss Children," illustrated with lantern slides.

As this completed the program for the evening, the meeting adjourned at 10:00 o'clock, to reconvene at 9:30 A. M., Wednesday.

## SECOND DAY—WEDNESDAY, MAY 21

## MORNING SESSION

The morning session of the second day was called to order at the Metropolitan Theatre, Mitchell, at 9:30 by the President, Dr. F. E. Clough.

Dr. F. W. Schlutz, Professor of Pediatrics, University of Minnesota, Minneapolis, gave a clinic on "Diseases of Children," and presented twenty-two cases.

On motion the meeting adjourned at 12:15 to reconvene at 2:00 P. M.

## AFTERNOON SESSION

The afternoon session of the second day was called to order at the Metropolitan Theatre, Mitchell, at 2:15 by the President, Dr. F. E. Clough, who introduced the newly elected President, Dr. R. L. Murdy, of Aberdeen, who spoke as follows:

DR. MURDY: Dr. Clough, Members of the South Dakota State Medical Association, Friends. I am not going to make a speech. If I attempted to I would have to borrow Dr. Clough's mode of putting it across in the good old Black Hills' fashion. However, I am impressed with the fact that the man who is elected President of the South Dakota State Medical Association is assuming a big job, provided he keeps up to the high standard that has been established by our retiring President, Dr. Clough, and those who have preceded him.

Dr. Clough has established a few precedents which I think it would be well for us to carry out to their ultimate conclusion. One of the precedents which, it seems to me, was a good thing which Dr. Clough has so ably accomplished was visiting the component societies of the State and getting acquainted with them and their methods of handling their meetings. The next precedent which he established was the present program, consisting of dry clinics, and I think this is the biggest step forward. True, Dr. Clough has had the hearty co-operation of the Secretary and of the House of Delegates and the various officers, as well as the support of the medical profession generally.

I am much impressed that the Association should have some definite aim to work toward some definite aim for the betterment of the organization. We should all be looking forward to the scientific side of the Association. This should be paramount. Secondly, we should be looking forward to our betterment socially. We could weld our Association into one big organization that could make its influence felt in the way of social improvement and help to mould public sentiment and favorably to influence legislation. If I have the support which has been so generously accorded Dr. Clough I believe that the work of this Association can be carried forward to a glorious conclusion. (Applause).

Dr. Clough then took the chair, as Dr. Murdy had to leave for home at once.



Dr. J. A. Pratt, Assistant Professor, Eye, Ear, Nose and Throat, University of Minnesota, Minneapolis, gave a clinic on "The Anatomy of the Accessory Sinuses of the Nose," illustrated by lantern slides and specimens.

Dr. F. L. Adair, Associate Professor of Gynecology, University of Minnesota, Minneapolis, gave a clinic on "Cancer of the Breast and Uterus" and presented several patients, and illustrated his talk with lantern slides and specimens.

Dr. Wallace Cole, Chief Surgeon, Shriners Hospital, St. Paul, Minnesota, gave an "Orthopedic Clinic" and presented eleven patients and several x-ray films.

Dr. Clough: Gentlemen, this completes our program. It is the first time our Association has ever put on a program consisting of anything other than a set group of papers. You can all realize the amount of work the men in Mitchell have done to get together this large group of patients who have been so ably demonstrated by the visiting clinicians. I am certain we have had as good a meeting as has ever been put on by this Association. Whether the program for next year will be of the same type remains for the Committee to determine. I wish to extend my personal thanks to all concerned in this meeting.

Dr. N. J. Nessa announced the meeting of the South Dakota Physiotherapy and Röntgenological Association to be held on Thursday, May 22, and invited all those interested to attend the sessions.

Dr. W. R. Ball, on behalf of the County Society, expressed his thanks to the doctors who had transported the patients from the hospital to the theatre and to the management of the theatre for the courtesy and assistance received.

The session adjourned at 5:30 *sine die*.

R. D. ALWAY, M.D.  
Secretary.

## PROCEEDINGS OF THE BOARD OF COUNCILORS

FIRST SESSION—TUESDAY, MAY 20, 1924

1:30 P. M.

The first meeting of Board of Councilors was called to order at the Hotel Widman at 1:30 p. m., May 20 by the President Dr. F. E. Clough, of Lead.

The Secretary announced a quorum present, and the President declared the Board duly constituted for the transaction of business.

The following Councilors were present:

Dr. F. E. Clough	.....Lead
Dr. J. F. D. Cook	.....Langford
Dr. H. W. Sherwood	.....Doland
Dr. C. H. R. Hovde	.....Madison
Dr. A. A. McLaurin	.....Pierre
Dr. L. N. Grosvenor	.....Huron
Dr. Fred Treon	.....Chamberlain
Dr. F. I. Putnam	.....Sioux Falls
Dr. J. P. Isaac	.....Freeman
Dr. F. W. Minty	.....Rapid City
Dr. R. D. Alway	.....Aberdeen

The Secretary-Treasurer presented his financial report.

## FINANCIAL REPORT OF THE SECRETARY-TREASURER

### Receipts

Balance brought forward	\$2,287.73
June 10, 1923, R. B. Fleeger	12.00
June 21, 1923, W. A. Bates	6.00
June 27, 1923, J. A. Hohf	6.00
June 30, 1923, W. A. Bates	6.00
July 5, 1923, P. R. Billingsley	30.00
September 7, 1923, W. A. Bates	6.00
October 30, 1923, J. A. Hohf	6.00
November 3, 1923, L. N. Grosvenor	6.00
February 7, 1924, H. B. Martin	42.00
March 1, 1924, R. A. Kelly	174.00
March 13, 1924, D. A. Gregory	210.00
March 15, 1924, R. A. Kelly	24.00
March 17, 1924, G. H. Lowthian	72.00
March 22, 1924, L. N. Grosvenor	114.00
March 31, 1924, R. A. Kelly	6.00
April 1, 1924, G. H. Lowthian	12.00
April 12, 1924, R. A. Kelly	30.00
April 17, 1924, Geo. B. Irvine	66.00
April 19, 1924, J. A. Hohf	186.00
April 22, 1924, J. R. Westaby	48.00
April 25, 1924, Lyle Hare	186.00
April 25, 1924, C. E. Sherwood	174.00
April 28, 1924, R. V. Overton	48.00
April 28, 1924, J. R. Westaby	6.00
April 28, 1924, R. V. Overton	12.00
April 30, 1924, R. V. Overton	6.00
April 30, 1924, L. N. Grosvenor	12.00
May 1, 1924, L. N. Grosvenor	6.00
May 1, 1924, D. A. Gregory	162.00
May 6, 1924, C. E. Sherwood	12.00
May 8, 1924, R. V. Overton	6.00
May 8, 1924, W. A. Bates	288.00
May 14, 1924, Lyle Hare	12.00
May 16, 1924, W. A. Bates	36.00
May 17, 1924, W. A. Bates	18.00
May 19, 1924, Lyle Hare	12.00
Total	\$4,345.73

### Disbursements

May 24, 1923, Irene H. Snyder, expenses, reporting annual meeting	\$ 65.00
May 24, 1923, J. B. Vaughn, expenses Delegation, A.M.A. meeting	.50.00

May 24, 1923, J. G. Parsons, expenses Com. conservation vision .....	100.00
May 24, 1923, R. D. Alway, postage .....	17.48
May 24, 1923, R. D. Alway, salary .....	250.00
June 2, 1923, H. J. Prentiss, expenses Watertown meeting .....	46.00
June 2, 1924, F. E. Sampson, expenses Watertown meeting .....	39.70
July 17, 1923, Irene H. Snyder, reporting annual meeting .....	68.75
July 17, Hed-Wilson Bond Fees .....	2.50
July 17, 1924, American Printing Co. Folders, Ladies Auxiliary .....	5.25
July 29, 1923, Journal-Lancet, Subscription January 1st to June 30th, 1923.....	352.50
August 17, 1923, A. M. A. Directory .....	12.00
September 28, 1923, American Printing Co., Letter Heads & Envelopes .....	13.00
November 3, 1923, Aberdeen Business College, Eye conservation letters.....	6.30
December 19, 1923, Journal-Lancet, Subscription, July to December, 1923 .....	357.00
March 7, 1924, American Printing Co., Membership cards .....	7.90
April 3, 1924, F. E. Clough, expenses visiting Medical Societies .....	78.00
May 7, 1924, R. D. Alway, postage .....	17.20
May 7, 1924, American Printing Co., Programs, State meeting and Programs Ladies Auxiliary .....	56.00
May 7, 1924, Western Union Telegraph Co. ....	3.07
May 9, 1924, J. R. Westaby, refund D. L. Scanlon dues .....	6.00
Total.....	\$1,553.54
Balance carried forward.....	\$2,792.19

The President appointed an auditing committee consisting of Dr. J. P. Isaac, Freeman; Dr. F. I. Putnam, Sioux Falls; and Dr. L. N. Grosvenor, Huron.

There being no further business the board adjourned until 1:30 P. M., Wednesday, May 21.

R. D. ALWAY, M.D.  
Secretary-Treasurer.

## SECOND SESSION—MAY 21

The second meeting of Board of Councilors was called to order by Dr. Fred Treon, Chamberlain, chairman, 1:30 P. M., May 21.

The Secretary called the roll and announced a quorum present.

The following Councilors were present:

Dr. J. F. D. Cook .....	Langford
Dr. H. W. Sherwood .....	Doland
Dr. C. H. R. Hovde .....	Madison
Dr. A. A. McLaurin .....	Pierre
Dr. L. N. Grosvenor .....	Huron
Dr. Fred Treon .....	Chamberlain
Dr. F. I. Putnam .....	Sioux Falls
Dr. J. P. Isaac .....	Freeman
Dr. F. W. Minty .....	Rapid City
Dr. R. D. Alway .....	Aberdeen

Dr. J. P. Isaac, chairman of the Auditing Committee, reported that the books of the Secretary-Treasurer had been examined and found correct.

It was moved, seconded, and carried that the Secretary be appointed a committee of one with power to act to endeavor to have the Workmen's Compensation Law amended at the next meeting of the legislature.

Motion was made and carried that Dr. Fred Treon be appointed Chairman and Dr. L. N. Grosvenor, Clerk for the ensuing year.

Motion was made and carried that the Board adjourn *sine die*.

R. D. ALWAY, M.D.  
Secretary-Treasurer.



## DISTRICT AND COUNTY ROSTER

## ABERDEEN DISTRICT MEDICAL SOCIETY—NO. 1

PRESIDENT  
Brunner, J. E. \_\_\_\_\_ Frederick

SECRETARY  
Bates, W. A. \_\_\_\_\_ Aberdeen

Adams, J. F. \_\_\_\_\_ Aberdeen  
Aldrich, H. H. \_\_\_\_\_ Orient  
Alway, R. D. \_\_\_\_\_ Aberdeen  
Baer, T. H. \_\_\_\_\_ Timber Lake  
Bates, W. A. \_\_\_\_\_ Aberdeen  
Brenckle, J. F. \_\_\_\_\_ Northville  
Brosseau, J. E. \_\_\_\_\_ Frankfort  
Bruner, J. E. \_\_\_\_\_ Frederick  
Chapman, W. S. \_\_\_\_\_ Redfield  
Chichester, J. G. \_\_\_\_\_ Redfield  
Cook, J. F. D. \_\_\_\_\_ Langford  
Countryman, G. E. \_\_\_\_\_ Aberdeen  
Crain, C. F. \_\_\_\_\_ Aberdeen  
Crain, F. M. \_\_\_\_\_ Redfield  
Creamer, Frank H. \_\_\_\_\_ Dupree  
Curtis, J. E. \_\_\_\_\_ Lemmon  
Deertz, J. J. \_\_\_\_\_ Brentford  
Dinsmore, W. E. \_\_\_\_\_ Claremont

Dunn, J. E. \_\_\_\_\_ Groton  
Elward, L. R. \_\_\_\_\_ Ashton  
Freyberg, F. W. \_\_\_\_\_ Aberdeen  
Gerdes, O. H. \_\_\_\_\_ Eureka  
Hart, B. M. \_\_\_\_\_ Onida  
Hart, R. S. \_\_\_\_\_ Groton  
Hill, Robert \_\_\_\_\_ Ipswich  
Jackson, E. B. \_\_\_\_\_ Aberdeen  
Johnston, M. C. \_\_\_\_\_ Aberdeen  
Jones, R. R. \_\_\_\_\_ Britton  
Jones, T. D. \_\_\_\_\_ Bowdle  
Katz, O. W. \_\_\_\_\_ Aberdeen  
King, H. I. \_\_\_\_\_ Aberdeen  
King, Owen \_\_\_\_\_ Aberdeen  
Kraushaar, F. \_\_\_\_\_ Aberdeen  
Kutnewsky, J. K. \_\_\_\_\_ Redfield  
Lavery, C. J. \_\_\_\_\_ Aberdeen  
Lowe, C. E. \_\_\_\_\_ Mobridge  
Lundquist, C. G. \_\_\_\_\_ Leola  
Mayer, R. G. \_\_\_\_\_ Aberdeen  
McCarthy, P. V. \_\_\_\_\_ Aberdeen  
McCauley, C. E. \_\_\_\_\_ Aberdeen

Mertens, J. J. \_\_\_\_\_ Gettysburg  
Miller, J. F. \_\_\_\_\_ Andover  
Miller, Frank \_\_\_\_\_ Aberdeen  
Murdy, B. C. \_\_\_\_\_ Aberdeen  
Murdy, R. L. \_\_\_\_\_ Aberdeen  
Murphy, T. W. \_\_\_\_\_ Pierpont  
Olson, C. O. \_\_\_\_\_ Groton  
Pittenger, E. A. \_\_\_\_\_ Aberdeen  
Potter, Geo. W. \_\_\_\_\_ Redfield  
Ramsey, E. T. \_\_\_\_\_ Clark  
Ranney, T. P. \_\_\_\_\_ Aberdeen  
Rosenthal, S. \_\_\_\_\_ Aberdeen  
Sargent, C. E. \_\_\_\_\_ Isabel  
Seeman, C. A. \_\_\_\_\_ Tulare  
Sutton, Dewey \_\_\_\_\_ Redfield  
Twining, G. H. \_\_\_\_\_ Mobridge  
Weishaar, C. H. \_\_\_\_\_ Aberdeen  
White, W. E. \_\_\_\_\_ Ipswich  
Whiteside, J. D. \_\_\_\_\_ Aberdeen  
Whitney, L. D. \_\_\_\_\_ Aberdeen  
Wilson, R. D. \_\_\_\_\_ Aberdeen  
Wohlleben, G. V. \_\_\_\_\_ Herreid

## WATERTOWN DISTRICT MEDICAL SOCIETY—NO. 2

PRESIDENT  
Williams, C. A. \_\_\_\_\_ Doland

SECRETARY  
Sherwood, C. E. \_\_\_\_\_ Watertown

Bartron, H. J. \_\_\_\_\_ Watertown  
Bates, J. S. \_\_\_\_\_ Clear Lake  
Campbell, R. F. \_\_\_\_\_ Watertown  
Crawford, J. H. \_\_\_\_\_ Watertown  
Christensen, B. M. \_\_\_\_\_ Toronto  
Fleeger, A. B. \_\_\_\_\_ Willow Lakes  
Freeburg, H. M. \_\_\_\_\_ Watertown

Frink, O. G. \_\_\_\_\_ South Shore  
Green, B. T. \_\_\_\_\_ Brookings  
Gross, D. W. \_\_\_\_\_ White  
Gueffroy, H. A. \_\_\_\_\_ Frankfort  
Hammond, M. J. \_\_\_\_\_ Watertown  
Haskell, H. I. \_\_\_\_\_ Clark  
Hendrickson, Paul \_\_\_\_\_ Vienna  
Johnson, A. Einar \_\_\_\_\_ Watertown  
Kenney, H. T. \_\_\_\_\_ Watertown  
Koren, Finn \_\_\_\_\_ Watertown  
Lockwood, J. H. \_\_\_\_\_ Henry  
McIntyre, P. S. \_\_\_\_\_ Bradley

Magge, W. G. \_\_\_\_\_ Watertown  
Parsons, H. C. \_\_\_\_\_ Watertown  
Paulson, A. J. \_\_\_\_\_ Watertown  
Pugh, G. F. \_\_\_\_\_ Florence  
Richards, G. H. \_\_\_\_\_ Watertown  
Schwendener, J. E. \_\_\_\_\_ Bryant  
Sherwood, C. E. \_\_\_\_\_ Watertown  
Sherwood, H. W. \_\_\_\_\_ Doland  
Smith, S. W. \_\_\_\_\_ Watertown  
Tarbell, H. A. \_\_\_\_\_ Watertown  
Vaughn, J. B. \_\_\_\_\_ Castlewood  
Williams, C. A. \_\_\_\_\_ Doland

## MADISON DISTRICT MEDICAL SOCIETY—NO. 3

PRESIDENT  
Baughman, D. S. \_\_\_\_\_ Madison

SECRETARY  
Westaby, J. R. \_\_\_\_\_ Madison

Baughman, D. S. \_\_\_\_\_ Madison  
Hickman, G. L. \_\_\_\_\_ Bryant  
Hoagland, C. C. \_\_\_\_\_ Madison  
Jordan, L. E. \_\_\_\_\_ Chester

Kellogg, H. E. \_\_\_\_\_ Madison  
Torwick, E. E. \_\_\_\_\_ Volga  
Westaby, J. R. \_\_\_\_\_ Madison  
Westaby, R. S. \_\_\_\_\_ Madison

## PIERRE DISTRICT MEDICAL SOCIETY—NO. 4

PRESIDENT  
Northrup, F. A. \_\_\_\_\_ Pierre

SECRETARY  
Martin, H. B. \_\_\_\_\_ Harrold

Martin, H. B. \_\_\_\_\_ Harrold  
McLaurin, A. A. \_\_\_\_\_ Pierre  
Minard, R. W. \_\_\_\_\_ Midland  
Morrisey, R. J. \_\_\_\_\_ Pierre

Northrup, F. A. \_\_\_\_\_ Pierre  
Riggs, T. F. \_\_\_\_\_ Pierre  
Stout, Trent \_\_\_\_\_ Pierre

## HURON DISTRICT MEDICAL SOCIETY—NO. 5

PRESIDENT  
Wright, O. R. \_\_\_\_\_ Huron

SECRETARY  
Grosvenor, L. N. \_\_\_\_\_ Huron

Buchanan, R. A. \_\_\_\_\_ Wessington  
Cogswell, M. E. \_\_\_\_\_ Wolsey  
Grosvenor, L. N. \_\_\_\_\_ Huron  
Launsbach, G. W. \_\_\_\_\_ Huron

Leach, W. O. \_\_\_\_\_ Huron  
McGarvey, F. B. \_\_\_\_\_ Cavour  
McKie, J. F. \_\_\_\_\_ Wessington  
McWhorter, Port \_\_\_\_\_ Miller  
Paddleford, J. F. \_\_\_\_\_ Miller  
Saxton, W. H. \_\_\_\_\_ Huron  
Saylor, H. L. \_\_\_\_\_ Huron  
Scheib, A. P. \_\_\_\_\_ Hitchcock  
Sewell, H. D. \_\_\_\_\_ Huron

Shirley, J. C. \_\_\_\_\_ Huron  
Sigler, G. V. \_\_\_\_\_ Highmore  
Sprague, B. H. \_\_\_\_\_ Huron  
Taylor, E. B. \_\_\_\_\_ Huron  
Thomas, Benj. \_\_\_\_\_ Huron  
Tschetter, J. S. \_\_\_\_\_ Huron  
Wheelock, D. O. \_\_\_\_\_ Miller  
Wood, T. J. \_\_\_\_\_ Huron  
Wright, O. R. \_\_\_\_\_ Huron

## SIOUX FALLS DISTRICT MEDICAL SOCIETY—NO. 7

Payne, R. H.	Tripp
Porras, L. P.	Lower Brule
Shull, J. H.	Alpena
Smiley, T. B.	Mt. Vernon
Stewart, F. H.	Kimball
Stockdale, C. P.	Ethan
Templeton, C. V.	Woonsocket
Tobin, F. J.	Mitchell
Treon, Fred	Chamberlain
Wagar, E. W.	Bijou Hills
Waldner, J. L.	Parkston
Wallis, S. R.	Armour
Willy, R. G.	Kimball
Young, E. M.	Mitchell

Putnam, E. D. ....	Sioux Falls
Putnam, F. I. ....	Sioux Falls
Reagan, R. ....	Sioux Falls
Rider, A. S. ....	Flandreau
Roberts, W. B. ....	Sioux Falls
Rundlett, D. L. ....	Sioux Falls
Sackett, Roy ....	Parker
Schwein, B. O. ....	Sioux Falls
Sherwood, H. H. ....	Humbolt
Siedenberf, F. ....	Sioux Falls
Schwartz, Jos. ....	Sioux Falls
Stegeman, S. B. ....	Salem
Stenberg, E. S. ....	Sioux Falls
Stern, M. A. ....	Sioux Falls
Stevens, G. A. ....	Sioux Falls
Stevens, R. G. ....	Sioux Falls
Trail, C. J. ....	Sioux Falls
Van Demark, G. E. ....	Sioux Falls
Vaughn, L. B. ....	Hurley
Wendt, C. L. ....	Canton
Zetlitz, K. A. L. ....	Sioux Falls
Zimmerman, Goldie ....	Sioux Falls

## BLACK HILLS DISTRICT MEDICAL SOCIETY—NO. 9

Kalayan, D. S.	.....Parker
Kauffman, E. J.	.....Marion
Keeling, C. M.	.....Springfield
Landmann, G. A.	.....Scotland
Moore, F. A.	.....Lesterville
Morehouse, E. M.	.....Yankton
Remy, C. E.	.....Yankton
Smith, F. C.	.....Yankton
Stansbury, E. M.	.....Vermilion
Sweezy, F. A.	.....Wakonda
Trierweiler, J. E.	.....Yankton
Willhite, F. V.	.....Redfield

Mitchell, Fred L. \_\_\_\_\_Newell  
Morse, W. E. \_\_\_\_\_Rapid City  
O'Toole, T. F. New Underwood  
Owen, N. T. \_\_\_\_\_Rapid City  
Pemberton, M. O. \_\_\_\_\_Deadwood  
Ramsey, Guy \_\_\_\_\_Philip  
Richards, F. A. \_\_\_\_\_Sturgis  
Stewart, J. L. \_\_\_\_\_Lead  
Walsh, J. M. \_\_\_\_\_Rapid City  
Wheeler, R. M. \_\_\_\_\_Hot Springs  
Williamson, W. R. \_\_\_\_\_Nemo  
Young, B. A. \_\_\_\_\_Hot Springs



## ROSEBUD DISTRICT MEDICAL SOCIETY—NO. 10

PRESIDENT  
Schaefer, J. E. \_\_\_\_\_ Colome  
SECRETARY  
Overton, R. V. \_\_\_\_\_ Dixon  
Bryant, F. A. \_\_\_\_\_ Herrick

Carmack, A. O. \_\_\_\_\_ Colome  
Hofer, M. M. \_\_\_\_\_ Dallas  
Kenaston, H. R. \_\_\_\_\_ Bonesteel  
Malster, R. M. \_\_\_\_\_ Carter  
Matousek, W. J. \_\_\_\_\_ Dallas  
Murnan, H. A. \_\_\_\_\_ Winner

Overton, R. V. \_\_\_\_\_ Dixon  
Quinn, J. F. \_\_\_\_\_ Gregory  
Quinn, W. M. \_\_\_\_\_ Winner  
Quinn, R. J. \_\_\_\_\_ Burke  
Schaefer, J. F. \_\_\_\_\_ Colome  
Waterman, J. C. \_\_\_\_\_ Burke

## KINGSBURY DISTRICT MEDICAL SOCIETY—NO. 11

PRESIDENT  
Dickey, J. B. \_\_\_\_\_ Iroquois  
SECRETARY  
Irvine, G. B. \_\_\_\_\_ Lake Preston

Ahern, J. J. \_\_\_\_\_ Oldham  
Bostrom, A. E. \_\_\_\_\_ De Smet  
Butler, C. A. \_\_\_\_\_ Lake Preston  
Cowgill, C. H. \_\_\_\_\_ Iroquois  
Dickey, J. B. \_\_\_\_\_ Iroquois  
Dyar, B. A. \_\_\_\_\_ De Smet

Grove, E. H. \_\_\_\_\_ Arlington  
Hopkins, N. K. \_\_\_\_\_ Arlington  
Irvine, G. B. \_\_\_\_\_ Lake Preston  
Jamieson, G. V. \_\_\_\_\_ De Smet  
Scanlon, D. S. \_\_\_\_\_ Volga

## WHETSTONE VALLEY DISTRICT MEDICAL SOCIETY—NO. 12

PRESIDENT  
Fleet, Chas. \_\_\_\_\_ Milbank  
SECRETARY  
Lowthain, G. W. \_\_\_\_\_ Milbank  
Brown, A. E. \_\_\_\_\_ Webster  
Church, E. O. \_\_\_\_\_ Revillo

Cliff, F. N. \_\_\_\_\_ Milbank  
DeTuncy, A. E. \_\_\_\_\_ Milbank  
Flett, Chas. \_\_\_\_\_ Milbank  
Harris, H. G. \_\_\_\_\_ Wilmot  
Jacotel, J. A. \_\_\_\_\_ Milbank  
Jenkins, P. B. \_\_\_\_\_ Waubay  
Hawkins, A. P. \_\_\_\_\_ Waubay

Hayes, C. E. \_\_\_\_\_ Waubay  
Langan, Paul \_\_\_\_\_ Webster  
Lowthain, G. W. \_\_\_\_\_ Milbank  
Peabody, H. C. \_\_\_\_\_ Webster  
Peabody, F. D. \_\_\_\_\_ Webster  
Severide, A. L. \_\_\_\_\_ Webster  
Sorise, B. \_\_\_\_\_ Summit

## ALPHABETICAL ROSTER

Adams, G. S. \_\_\_\_\_ Yankton  
Adams, J. F. \_\_\_\_\_ Aberdeen  
Aldrich, H. H. \_\_\_\_\_ Orient  
Ahern, J. J. \_\_\_\_\_ Oldham  
Allen A. G. \_\_\_\_\_ Deadwood  
Allison, B. S. \_\_\_\_\_ Sioux Falls  
Alway, R. D. \_\_\_\_\_ Aberdeen  
Baer, T. H. \_\_\_\_\_ Timberlake  
Ball, W. R. \_\_\_\_\_ Mitchell  
Barnes, Wm. \_\_\_\_\_ Sioux Falls  
Bartron, H. J. \_\_\_\_\_ Watertown  
Bates, J. S. \_\_\_\_\_ Clear Lake  
Bates, W. A. \_\_\_\_\_ Aberdeen  
Baughman, D. S. \_\_\_\_\_ Madison  
Beall, L. F. \_\_\_\_\_ Irene  
Beukelman, W. H. \_\_\_\_\_ Stickney  
Berry, S. G. \_\_\_\_\_ Tyndall  
Bigler, Lottie G. \_\_\_\_\_ Armour  
Billion, T. J. \_\_\_\_\_ Sioux Falls  
Billingsley, P. R. \_\_\_\_\_ Sioux Falls  
Blezek, F. M. \_\_\_\_\_ Tabor  
Bliss, P. D. \_\_\_\_\_ Colton  
Bobb, B. A. \_\_\_\_\_ Mitchell  
Bobb, Clyde S. \_\_\_\_\_ Mitchell  
Bobb, E. V. \_\_\_\_\_ Mitchell  
Bostrom, A. E. \_\_\_\_\_ De Smet  
Braddock, W. M. \_\_\_\_\_ Yankton  
Brandon, P. E. \_\_\_\_\_ Sioux Falls  
Brandt, F. A. \_\_\_\_\_ Sturgis  
Breckle, J. F. \_\_\_\_\_ Northville  
Brosseau, J. E. \_\_\_\_\_ Frankfort  
Brown, A. E. \_\_\_\_\_ Webster  
Buchanan, R. A. \_\_\_\_\_ Wessington  
Bruner, J. E. \_\_\_\_\_ Frederick  
Bryant, F. A. \_\_\_\_\_ Herrick  
Burkland, P. R. \_\_\_\_\_ Vermilion  
Bushnell, Wm. F. \_\_\_\_\_ Elk Point  
Butler, C. A. \_\_\_\_\_ Lake Preston  
Campbell, R. F. \_\_\_\_\_ Watertown  
Carmack, A. O. \_\_\_\_\_ Colome  
Chassell, J. L. \_\_\_\_\_ Bellefourche  
Chapman, W. S. \_\_\_\_\_ Redfield  
Chichester, J. G. \_\_\_\_\_ Redfield  
Christensen, B. M. \_\_\_\_\_ Toronto

Clagett, M. H. \_\_\_\_\_ Menno  
Church, E. O. \_\_\_\_\_ Revillo  
Clauser, G. A. \_\_\_\_\_ Bridgewater  
Cliff, F. N. \_\_\_\_\_ Milbank  
Clough, F. E. \_\_\_\_\_ Lead  
Cochran, F. B. \_\_\_\_\_ Plankinton  
Cogswell, M. E. \_\_\_\_\_ Wolsey  
Cook, J. F. D. \_\_\_\_\_ Langford  
Cottam, G. G. \_\_\_\_\_ Sioux Falls  
Countryman, G. E. \_\_\_\_\_ Aberdeen  
Cowgill, C. H. \_\_\_\_\_ Iroquois  
Craig, D. W. \_\_\_\_\_ Sioux Falls  
Crain, C. F. \_\_\_\_\_ Aberdeen  
Crain, F. M. \_\_\_\_\_ Redfield  
Crane, H. L. \_\_\_\_\_ Lead  
Crawford, R. A. \_\_\_\_\_ Chamberlain  
Crawford, J. H. \_\_\_\_\_ Watertown  
Creamer, F. H. \_\_\_\_\_ Dupree  
Crecelius, H. A. \_\_\_\_\_ Volin  
Crouch, J. A. \_\_\_\_\_ Bellefourche  
Cruickshank, Thos. \_\_\_\_\_ Vermilion  
Culver, C. F. \_\_\_\_\_ Sioux Falls  
Curtis, J. E. \_\_\_\_\_ Lemmon  
De Vall, F. C. \_\_\_\_\_ Garretson  
Deertz, J. J. \_\_\_\_\_ Brentford  
Delaney, W. A. \_\_\_\_\_ Mitchell  
DeTuncy, A. E. \_\_\_\_\_ Milbank  
Dick, L. C. \_\_\_\_\_ Spencer  
Dickey, J. B. \_\_\_\_\_ Iroquois  
Dinsmore, W. E. \_\_\_\_\_ Claremont  
Dickinson, W. E. \_\_\_\_\_ Canisota  
Donahoe, S. A. \_\_\_\_\_ Sioux Falls  
Donahoe, W. E. \_\_\_\_\_ Sioux Falls  
Duguid, I. O. \_\_\_\_\_ Springfield  
Dutton, H. H. \_\_\_\_\_ Sedro Wooley,  
Washington  
Dunn, J. E. \_\_\_\_\_ Groton  
Dyar, B. A. \_\_\_\_\_ De Smet  
Eagan, J. B. \_\_\_\_\_ Dell Rapids  
Egan, M. H. \_\_\_\_\_ Sioux Falls  
Elward, L. R. \_\_\_\_\_ Ashton  
Erickson, O. L. \_\_\_\_\_ Sioux Falls  
Ewald, P. P. \_\_\_\_\_ Lead  
Farnsworth, C. P. \_\_\_\_\_ Chamberlain

Fasser, A. C. \_\_\_\_\_ Cheyenne, Wyo.  
Fleeger, A. B. \_\_\_\_\_ Willow Lake  
Fleeger, R. B. \_\_\_\_\_ Lead  
Flett, Chas. \_\_\_\_\_ Milbank  
Freeburg, H. M. \_\_\_\_\_ Watertown  
Freeman, J. W. \_\_\_\_\_ Lead  
Freshour, I. M. \_\_\_\_\_ Yankton  
Freyberg, F. W. \_\_\_\_\_ Aberdeen  
Frink, O. G. \_\_\_\_\_ So. Shore  
Frink, R. P. \_\_\_\_\_ Wagner  
Gage, A. E. \_\_\_\_\_ Salem  
Gage, E. E. \_\_\_\_\_ Sioux Falls  
Gerdes, O. H. \_\_\_\_\_ Eureka  
Gifford, A. J. \_\_\_\_\_ Alexandria  
Gillis, F. D. \_\_\_\_\_ Mitchell  
Gregg, J. B. \_\_\_\_\_ Sioux Falls  
Gregory, D. R. \_\_\_\_\_ Sioux Falls  
Green, B. T. \_\_\_\_\_ Brookings  
Gross, C. C. \_\_\_\_\_ Yankton  
Gross, D. W. \_\_\_\_\_ White  
Grosvenor, L. N. \_\_\_\_\_ Huron  
Grove, A. F. \_\_\_\_\_ Dell Rapids  
Grove, M. M. \_\_\_\_\_ Dell Rapids  
Grove, E. H. \_\_\_\_\_ Arlington  
Gueffroy, H. A. \_\_\_\_\_ Frankfort  
Hammond, M. J. \_\_\_\_\_ Watertown  
Hanson, O. L. \_\_\_\_\_ Valley Springs  
Hannon, L. J. \_\_\_\_\_ Hartford  
Hare, Carlyle \_\_\_\_\_ Spearfish  
Hargens, C. W. \_\_\_\_\_ Hot Springs  
Harris, H. G. \_\_\_\_\_ Wilmot  
Hart, B. M. \_\_\_\_\_ Onida  
Hart, R. S. \_\_\_\_\_ Groton  
Haskell, H. I. \_\_\_\_\_ Clark  
Hawkins, A. P. \_\_\_\_\_ Waubay  
Hayes, C. E. \_\_\_\_\_ Waubay  
Heinemann, A. A. \_\_\_\_\_ Wasta  
Hendrickson, Paul, \_\_\_\_\_ Vienna  
Hickman, G. L. \_\_\_\_\_ Bryant  
Hill, L. G. \_\_\_\_\_ Sioux Falls  
Hill Robert \_\_\_\_\_ Ipswich  
Hoagland, C. C. \_\_\_\_\_ Madison  
Hodges, V. R. \_\_\_\_\_ Lead  
Hofer, M. M. \_\_\_\_\_ Dallas

Hohf, J. A. _____	Yankton	Mattox, N. E. _____	Lead	Schwendene, J. E. _____	Bryant
Hohf, S. M. _____	Yankton	Mayer, R. G. _____	Aberdeen	Schwein, B. O. _____	Sioux Falls
Hopkins, N. K. _____	Arlington	Maytum, W. G. _____	Alexandria	Seeman, C. A. _____	Tulare
Housman, W. McK. _____	Sioux Falls	Mertens, J. J. _____	Gettysburg	Severide, A. L. _____	Webster
Howe, F. S. _____	Deadwood	Mesirow, M. E. _____	Wall	Sewell, H. D. _____	Huron
Hoyne, A. H. _____	Salem	Miller, Frank _____	Aberdeen	Sherwood, C. E. _____	Watertown
Hultz, Eugene _____	Hill City	Miller, George _____	Spearfish	Sherwood, H. H. _____	Humbolt
Hummer, H. R. _____	Canton	Miller, J. F. _____	Andover	Sherwood, H. W. _____	Doland
Hunt, Wm. _____	Murdo	Miller, J. L. _____	Spencer	Shirley, J. C. _____	Huron
Hyden, A. _____	Alcester	Mills, G. W. _____	Wall	Shull, J. H. _____	Alpena
Irvine, G. B. _____	Lake Preston	Minard, R. W. _____	Midland	Siedenbergh, F. _____	Sioux Falls
Isaac, J. P. _____	Freeman	Minty, F. W. _____	Rapid City	Sigler, G. V. _____	Highmore
Jackson, A. S. _____	Lead	Mitchell, Fred L. _____	Newell	Smiley, T. B. _____	Mt. Vernon
Jackson, E. B. _____	Aberdeen	Mizner, Mark _____	Parkston	Smith, F. C. _____	Yankton
Jackson, R. J. _____	Rapid City	Moe, A. J. _____	Sioux Falls	Smith, S. W. _____	Watertown
Jacotel, J. A. _____	Milbank	Moore, F. A. _____	Lesterville	Soroise, B. _____	Summit
Jamieson, G. V. _____	De Smet	Morehouse, E. M. _____	Yankton	Sprague, B. H. _____	Huron
Jenkins, P. B. _____	Waubay	Morrissey, R. J. _____	Pierre	Stansbury, E. M. _____	Vermilion
Jenkinsen, H. E. Wess. _____	Spring	Morse, W. E. _____	Rapid City	Stenberg, E. S. _____	Sioux Falls
Johnson, A. Einar _____	Watertown	Mullen, R. W. _____	Sioux Falls	Stern, M. A. _____	Sioux Falls
Johnson, G. E. _____	Avon	Murphy, B. C. _____	Aberdeen	Stegman, S. B. _____	Salem
Johnston, M. C. _____	Aberdeen	Murphy, R. L. _____	Aberdeen	Stewart, F. H. _____	Kimball
Jones, A. L. _____	Corisca	Murnan, H. A. _____	Winner	Stewart, J. L. _____	Lead
Jones, T. D. _____	Bowdle	Murphy, T. W. _____	Pierpont	Stevens, G. A. _____	Sioux Falls
Jones, E. W. _____	Mitchell	Nessa, N. J. _____	Sioux Falls	Stevens, R. G. _____	Sioux Falls
Jones, R. R. _____	Britton	Northrup, F. A. _____	Pierre	Stockdale, C. P. _____	Ethan
Jones, T. E. _____	Sioux Falls	O'Toole, T. F. _____	New Underwood	Stout Trent _____	Pierre
Jordan, A. A. _____	Hudson	Olson, C. O. _____	Groton	Sutton, Dewey _____	Redfield
Jordan, L. E. _____	Chester	Overton, R. V. _____	Dixon	Sweezy, F. A. _____	Wakonda
Kalayjian, D. S. _____	Parker	Owen, N. T. _____	Rapid City	Tarbell, H. A. _____	Watertown
Katz, O. W. _____	Aberdeen	Paddleford, J. F. _____	Miller	Taylor, E. B. _____	Huron
Kauffman, E. J. _____	Marion	Pankow, L. T. _____	Sioux Falls	Templeton, C. V. _____	Woonsocket
Keeling, C. M. _____	Springfield	Parke, L. L. _____	Canton	Thomas, Benj. _____	Huron
Keller, S. A. _____	Sioux Falls	Parsons, H. C. _____	Watertown	Tobin, F. J. _____	Mitchell
Keller, W. F. _____	Sioux Falls	Parsons, J. G. _____	Sioux Falls	Torwick, E. E. _____	Volga
Kellogg, H. E. _____	Madison	Paulson, A. J. _____	Watertown	Trail, C. J. _____	Sioux Falls
Kelly, R. A. _____	Mitchell	Payne, R. H. _____	Tripp	Trierweiler, J. E. _____	Yankton
Kenaston, H. R. _____	Bonesteel	Peabody, H. C. _____	Webster	Treon, Fred _____	Chamberlain
Kenney, H. T. _____	Watertown	Peabody, P. D. _____	Webster	Tschetter, J. S. _____	Huron
Kidd, F. S. _____	Woonsocket	Pemberton, M. O. _____	Deadwood	Twining, G. H. _____	Mobridge
Kimble, O. A. _____	Murdo	Perkins, E. L. _____	Sioux Falls	Van Demark, G. E. _____	Sioux Falls
King, H. I. _____	Aberdeen	Pittenger, E. A. _____	Aberdeen	Vaughn, J. B. _____	Castlwood
King, Owen _____	Aberdeen	Porrass, L. P. _____	Lower Brule	Vaughn, L. B. _____	Hurley
Koren, Finn _____	Watertown	Potter, Geo. W. _____	Redfield	Wager, E. W. _____	Bijou Hills
Kraushaar, F. J. _____	Aberdeen	Pugh, G. F. _____	Florence	Waldner, J. L. _____	Parkston
Kutnewsky, J. K. _____	Redfield	Putnam, E. D. _____	Sioux Falls	Wallis, S. R. _____	Armour
Landmann, G. A. _____	Scotland	Putnam, F. I. _____	Sioux Falls	Walsh, J. M. _____	Rapid City
Langan, Paul _____	Webster	Quinn, J. F. _____	Gregory	Waterman, J. C. _____	Burke
Launspach, G. W. _____	Huron	Quinn, R. J. _____	Burke	Weishaar, C. H. _____	Aberdeen
Lavery, C. J. _____	Aberdeen	Quinn, W. M. _____	Winner	Wendt, C. L. _____	Canton
Leach, W. O. _____	Huron	Ramsey, E. T. _____	Clark	Westaby, J. R. _____	Madison
Lierle, G. A. _____	Canova	Ramsey, Guy _____	Philip	Westaby, R. S. _____	Madison
Lockwood, J. H. _____	Henry	Ranney, T. P. _____	Aberdeen	Wheeler, R. M. _____	Hot Springs
Lloyd, J. H. _____	Mitchell	Reagan, R. _____	Sioux Falls	Wheelock, D. O. _____	Miller
Lowe, C. E. _____	Mobridge	Richards, F. A. _____	Sturgis	Willy R. G. _____	Kimball
Lowthain, G. W. _____	Milbank	Richards, G. H. _____	Watertown	White, W. E. _____	Ipswich
Lundquist, C. C. _____	Leola	Rider, A. S. _____	Flandreau	Whiteside, J. D. _____	Aberdeen
McCarthy, P. V. _____	Aberdeen	Riggs, T. F. _____	Pierre	Whitney, L. D. _____	Aberdeen
McGarvey, F. B. _____	Cavour	Roberts, W. B. _____	Sioux Falls	Willhite, F. V. _____	Redfield
McCauley, C. E. _____	Aberdeen	Remy, C. E. _____	Yankton	Williams, C. A. _____	Doland
McClellen, S. A. _____	Kenabec	Rosenthal, S. _____	Aberdeen	Williamson, W. R. _____	Nemo
McIntyre, P. S. _____	Bradley	Rundlett, D. L. _____	Sioux Falls	Wilson, R. D. _____	Aberdeen
McKie, J. F. _____	Wessington	Sackett, Roy _____	Parker	Wohlleben, G. Von _____	Herreid
McLaurin, A. A. _____	Pierre	Sargent, C. E. _____	Isabel	Wood, T. J. _____	Huron
McManus, Clara _____	Gann Valley	Saxton, W. H. _____	Huron	Wright, O. R. _____	Huron
Mc Whorter, Port _____	Miller	Saylor, H. L. _____	Huron	Young, B. A. _____	Hot Springs
Magee, W. G. _____	Watertown	Scanlon, D. S. _____	Volga	Young, E. M. _____	Mitchell
Malster, R. M. _____	Carter	Schaefer, J. C. _____	Colome	Zetlitz, K. A. L. _____	Sioux Falls
Martin, H. B. _____	Harrold	Scheib, A. P. _____	Hitchcock	Zimmerman, Goldie _____	Sioux Falls
Matousek, W. J. _____	Dallas	Schwartz, Jos. _____	Sioux Falls		



## TUBERCULOSIS OF THE LYMPH NODES

BY DANIEL H. BESSESEN, M.D.

MINNEAPOLIS, MINNESOTA

The tubercle bacillus may be a source of lymph-node infection in any part of the body. It is generally conceded that there will be no infection of a node without a corresponding infection in the peripheral parts which that node drains. Progression or regression of the nodal infection may or may not be dependent upon the progression or regression of the peripheral lesion. When nodal infection obtains ascendancy over the primary lesion, its presence may aggravate the primary lesion.

*Occurrence.*—The lymph nodes are involved in 20-30 per cent of tuberculous children<sup>1</sup> and in 7-10 per cent of tuberculous adults.<sup>2</sup> It occurs equally in both sexes, constituting from 30-40 per cent of all cases of enlarged lymph nodes.<sup>3,4</sup>

*Etiology.*—Unhygienic surroundings which interfere with proper warmth, air, light, food, and rest, combined with overwork—all those factors, which are stressed so much in the treatment of the infection, are important etiological elements. There are certain predisposing diseases, especially infections around the upper respiratory tract and contagious diseases, which seem to aid the virulence of the infecting acid-fast organism. But more important than unhygienic surroundings or predisposing diseases is the tubercle bacillus of either bovine or human type which is credited with gaining entrance through milk from infected cattle, or from proximity with already infected patients.

Infections of the cervical nodes, usually gain entrance through the tonsils. In an extensive study (microscopic and animal inoculation) of 6,171 tonsillectomies for all causes by collected authors, 371, or 6.02 per cent, were found to be tuberculous.<sup>5</sup> Infections in the tonsils very quickly spread to the cervical nodes, particularly to the parotid node lying at the angle of the jaw under the digastric muscle. It is known as the "tonsillar" node. The cervical nodes may be infected from other infected regions about the head and neck, but 75 per cent of cervical node infection is attributed to tonsillar origin.

Infections of the bronchial nodes are given entry through infected air, as well as through the spread of infection from other parts of the body, especially from the cervical nodes.

The mesenteric nodes may become infected through the intestines without there being, of

necessity, any lesion in the intestines themselves; that is, the infected material is absorbed in the usual manner and is taken up by the lymph nodes, probably as the primary lesion. In most instances, however, there is a lesion preceding the nodal infection.

The lumbar nodes drain the lower extremities and external and internal genitals. They are especially likely to become infected from the urogenital tract.

Extensions take place from any group of nodes to other groups in the body through transudation, filtration, diffusion, osmosis, muscle action, breathing activity, and differences of blood pressure. Autopsies on bodies of patients afflicted with tuberculosis of the lymph nodes show a generalized infection of the nodes in 60 per cent of the cases.<sup>2,6</sup> Most commonly the infection is located in the cervical region.

*Pathology.*—The pathology which lymph nodes show when infected with the tubercle bacillus may be divided into three types: the miliary, which shows numerous tubercle formations throughout the lymphatic structure; the diffuse, which shows large areas of so-called epithelioid cells with few giant cells; and the caseating, which demonstrates areas of necrosis interspersed among the tubercle formations.

*Clinical picture.*—The symptoms of tuberculosis of the lymph nodes are not many. The usual complaint is that of swelling. There is no pain as a rule. There may be a slight anemia. With this there may or may not be the usual signs of activity of tuberculosis, such as fever, fatigue, malaise, loss of weight, anorexia, and night sweats. Motion of the head, neck, or upper or lower extremity may be interfered with, depending on the location of the disease. In the neck the mass is located high and may show perilymphadenitis.

*Diagnosis.*—The diagnosis is usually made without difficulty by the history and the physical findings of a mass in the upper part of the neck, in the axilla or the groin. Occasional cases, notably those of the mediastinal nodes, abdominal nodes, or sometimes involvement of the other groups in the body, require special attention.

Of the congenital anomalies which must be distinguished from tuberculosis of the lymph nodes, branchial cysts, thyroglossal ducts, and

extraneous or misplaced portions of the thyroid gland are preëminent in their necessity for consideration. For the most part their anatomical situation and single nature are in difficultly questionable cases, the only features which differentiate them from tuberculosis of the lymph nodes. Infections present the most common of all causes of lymphatic enlargement. Actinomycosis closely simulates tuberculosis early, but quickly breaks down and discharges the so-called sulphur bodies. Syphilis is characterized by symptoms elsewhere, by the positive Wassermann, and by the history of the condition. Occasionally this disease must be classified by elimination of other illnesses. Pyogenic infections constitute the most prevalent of all causative agents of enlarged nodes. They, however, are of shorter duration, coming and going when acute or subacute and improving or showing exacerbations when chronic.

The blood diseases, as leukemias, show a blood picture not easy to overlook, together with the development of enlarged lymph nodes in other parts of the body.

The neoplastic diseases to be borne in mind form a fairly large group. Carcinomata are usually secondary. They are hard, discrete, movable, and do not break down. Sarcomata, especially lymphosarcomata, are more rapid in growth, firm, solid, venous, and sometimes soft and juicy, but discrete, movable, and do not break down. Endotheliomata of the lymph nodes are of not infrequent origin and are very difficult to distinguish from tuberculosis. Ewing states that tuberculosis may lead to endotheliomatous changes in the lymph nodes. They are, however, usually discrete, progressive, and may later produce necrosis. These characteristics also hold for Hodgkin's disease. Dermoid cysts are usually the result of irregularities in the closure of branchial clefts. In addition to the above conditions which must be differentiated, mediastinal and abdominal nodal tuberculosis may be confused with abdominal diseases, notable ulcer of the stomach, gall-bladder disease, and appendicitis. This diagnosis is very difficult. Operation is usually performed without a diagnosis or with a mistaken diagnosis.

*Prognosis.*—A survey of the literature gives a general prognosis of 75 per cent cures from tuberculosis of the lymph nodes with a slight favoring for heliotherapy<sup>7,8</sup> and surgery<sup>3,10,11,12</sup> over *x*-ray<sup>9</sup> or tuberculin.<sup>13</sup> Of the 25 per cent<sup>6,14</sup> of cases which do not respond favorably

death occurs from pulmonary, intestinal, meningeal, or other tuberculous activity.

*Treatment.*—Protection of the child from infected milk or from exposure to an active case of tuberculosis in the presence of hygienic environment, as a rule, are sufficient to prevent contraction of the disease.

The proper administration of rest, fresh air, good food, and heliotherapy is the basis of correct treatment in tuberculosis of the lymph nodes. The occasional application of surgery, *x*-ray, and tuberculin constitutes aids to this therapeutics. Rest is very much emphasized and, when activity is present, must be absolute. During convalescence rest hours should be strictly followed, and when the patient is sufficiently improved mild exercises are prescribed. When the patient's condition will warrant it, the clearing up of all foci of infection offers a more rapid progress.

Not much of real value has been advanced as regards the action of heliotherapy on physiology, though Mayer has attempted a summary of the most important thoughts that have been ventured on the subject. He attributes to heliotherapy, or treatment by the mercury quartz lamp, better sleep, increased appetite, less nervousness, increased weight, loss of fatigue, and increased pigmentation. There is a good psychic effect from its use. The range of split light is from red to violet. Ultraviolet rays are shorter than violet rays. They become shorter and shorter until they finally merge into the *x*-rays. The ultraviolet rays should possess the greatest chemical activity, but, because of the great absorption occurring during the passage of light through the atmosphere, the greatest chemical activity is just short of the ultraviolet except in places of high altitude with low humidity. They are strongest at the seashore, on mountains, and on deserts. Schröder observed a reduced carbon dioxide tension, increased breathing, reduced pulse rate, and dilated capillaries as the result of ultraviolet radiation. The ray penetrates 3 mm. into the human tissue. Hyde noted an increased lymphocytosis, increased red cells, and hemoglobin formation from heliotherapy. The skin temperature rises, and the deep temperature falls. The nervous system is stimulated. The actinic ray is bactericidal though not so in deep tissues.

Injuries produced by an overdose of the light are irritation of the nervous system, fever, rapid pulse, and advance of the disease. Pigmentation is most important. It is considered a product of the sebaceous glands because these glands have



a greater development in deeply pigmented skins. The pigment produced to be most effective must circulate in the body and quickly disappears on discontinuance of the application of the causative agent.

To properly apply heliotherapy<sup>8,16</sup> the body is zoned into five regions: from the foot to the ankle; from the ankle to the knee; from the knee to the hip; from the hip to the chest; and from the xiphoid up. The first region is exposed to the direct sunlight for five minutes in front and five minutes in back; this exposure is repeated in one hour. The next day the first region is exposed ten minutes, the second five minutes front and back, and this exposure repeated in one hour. The third day the first region receives fifteen minutes application front and back, the second ten minutes and the third five, and the exposure is repeated in one hour. After this day the exposures are given only once; they are not repeated. Each region is thus advanced in exposure five minutes front and back each day. The rapidity of progress in the therapy may vary according to the demands of the individual patient, and the final exposure may be greater or less in different cases.

Numerous warnings are given by those experienced in heliotherapy against overdosing the patient. While not of frequent occurrence it sometimes happens that a patient will show unusual sensitiveness to the ultraviolet ray and the toxic action as previously described will appear.

*X-ray.*—The changes in apparatus and the variations of methods of technic, together with the lack of accessible data on the results of treatment, render this particular remedy a difficult one to classify. The modern apparatus delivering the hard ray, which should be filtered preferably, is of greatest benefit. Longer exposures with fewer sittings are more productive of good results than are short exposures with many sittings.

*Tuberculin.*—Where it is desired to use this therapy, Miller<sup>13</sup> advises the use of tuberculin boullion filtrate, starting with .0001 mgm. each week gradually increasing for two or three years until 100 mgm. or more are given each week. Great caution should be used in this application.

*Surgery.*—Operative procedures require much judgment. Primarily, radical surgery is contra-indicated. It depends upon the extent of involvement, the general condition of the patient, the

extent of suppuration, the ability of the surgeon, and the finances and intelligence of the patient. Accidents of operation are many and the procedure is very difficult. However, when necessary, in the hands of an experienced and capable surgeon, the results from the knife are very good.

#### CONCLUSIONS

Tuberculosis of the lymph nodes is of not infrequent occurrence, due mainly to infected milk or exposure to active infection.

The cervical nodes are most frequently involved, presenting a miliary, diffuse, or caseating type of pathology. It must be differentiated from branchial cysts, thyroglossal duct, extraneous thyroid gland tissue, pyogenic infections, actinomycosis, syphilis, leukemias, carcinomata, sarcomata, endotheliomata, Hodgkin's disease, dermoids, and, in the abdomen, from gastric ulcer, appendicitis, and cholecystitis.

The prognosis is approximately 75 per cent cured from all types of treatment in all types of cases.

The treatment of choice after prevention is hygiene and heliotherapy with occasional surgery, x-ray, and tuberculin.

#### LITERATURE

1. de Besche, Arent: Simultaneous Infection in a Child with Tubercle Bacilli of the Human and Bovine Types. *Inf. Dis.*, 16:360, 1915.
2. Mitchell, James F.: The Surgical Treatment of Tuberculous Cervical Adenitis. *Johns Hopkins Hospital Bul.* 13:161, July, 1902.
3. Ladd, W. E.: Tuberculous Cervical Adenitis in Children. *Surg. Gyn. Obst.*, 24:467, Jan.-June, 1917.
4. Laser, Hugo: Ueber die Häufigkeit des Vorkommens von tuberkulösen Halsdrüsen bei Kindern. *Deutsch. med. Wechschr.*, 22:500, July 30, 1896.
5. Metcalf, Walter B.: The Tonsil as a Portal of Entry in Tuberculosis of the Cervical Glands. *Ill. Med. Jour.*, 32:19, July, 1917.
6. Harbitz, Francis: Tuberculosis of the Lymph Nodes. *Jour. Inf. Dis.*, 20-21:196, 1917.
7. Dinnan, James B.: Concerning Heliotherapy in Tuberculosis. *Med. Rec.*, 97:62, Jan. 10, 1920.
8. Rollier, August: *La Cure de Soleil*. *Baliere et fils*. Par. 1915.
9. Boggs, Russell H.: The Treatment of Tuberculous Glands. *N. Y. Med. Jour.*, 103:1016, July, 1921.
10. Tuberculous Adenitis and its Treatment by Röntgen Rays. *Am. Jour. Röntgen.*, 5:425, 1918.
11. The Treatment of Tuberculous Adenitis by Röntgen Rays. *Am. Jour. Med. Sc.*, 162:90, July, 1921.
12. Dowd, Charles N.: Tuberculosis of the Cervical Lymphatics. *Jour. of the A. M. A.*, 67:499, August 12, 1916.
13. Lahey, Frank H. and Clute, Howard M.: End-results of the Surgical Treatment of 48 Cases of Tuberculous Cervical Adenitis. *Boston Med. and Surg. Jour.*, 186:280, March 2, 1922.
14. Moreau, J. and van Bogaert: Mesenteric Gland Tuberculosis. *Arch. Franco-Belges de Chir.*, 25:888, July, 1922.
15. *ab. Jour. of the A. M. A.*, 80:65, January 6, 1923.
16. Miller, Richard H.: The Treatment of Tuberculous Cervical Adenitis. *Jour. of the A. M. A.*, 79:350, July 29, 1922.
17. Berry, Martin: X-ray Treatment of Tuberculous Glands. *Brit. J. Tuberc.*, 15:13, January, 1921.
18. Mayer, Edgar: Heliotherapy in Tuberculosis. *Am. Rev. Tuberc.*, 1:698, February, 1918.
19. Mendes, J. Harry: Heliotherapy in the Treatment of Tuberculosis. *Minn. Med.*, 7:154, March, 1924.

# THE JOURNAL-LANCET

Represents the Medical Profession of

Minnesota, North Dakota, South Dakota and Montana

The Official Journal of the

North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

JULY 1, 1924

## THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION

Chicago proved to be the logical meeting-place of the American Medical Association. It has the city and the hotels, the street service, and the Municipal Pier in which the meetings were held. The Pier is some distance from the hotel district, although within a half mile of the Drake and within approximately the same distance or about three-quarters of a mile from the American Medical Association group of buildings. But as every one either drove a car or rode in a cab, because obliged to, it made but little difference, and it certainly made no difference in the attendance at the registration bureau. The total registration for the four days was 7,668, which is over 1,200 more than the total registration at the largest previous session.

It is very difficult to describe a meeting of this magnitude, but one ought to refer at first to the registration bureau, which was larger and more ably conducted than at any other session. Then, too, the *Journal of the American Medical Association* had its exhibits at the entrance on the Pier, or at the entrance of the exhibit hall, which included the various posters which advertised *Hygeia*, their famous health journal, and all the various publications, both in pamphlet and book form, that are gotten out by the American Medical Association; and unless one sees this exhibit it is almost impossible to grasp how much work

has been accomplished by this great organization. As one walked down the Pier the exhibit space extended one-third of the way, and as the Pier is a mile long one can imagine what space must have been covered.

In the first section there were the general exhibit spaces for books and instruments and everything that is part of the doctor's office equipment, or that might be useful in any way to hospitals and medical organizations. There were numbers of booths which were particularly interesting. For instance, the laboratory booths from the various medical departments throughout the country. At one booth the pathologist demonstrated to a constantly attending crowd of visitors, both medical and lay people, the pathology of the different organs, and he made it plain, interesting, and instructive in every way. There were other similar exhibitions of the work of medical schools and laboratories that were equally interesting, but not so attractive. Then, as one went down the line, the farther end of the Pier space was given over to the purely scientific exhibits, which were wholly educational from a public-health point of view, and every possible angle that would interest the health departments was wonderfully illustrated. All of the various medical exhibits, the preparation of medical products by the well-known firms, were carried out to the nth degree. It is said that the exhibit this year was by far better than anything that was ever attempted by the American Medical Association before.

Beyond the exhibit spaces were the various meeting-places for Sections. And one may appreciate the fact that before going into the Sections one had to stop at the moving-picture hall, which was quite a large assembly room, and during the day there were moving-pictures of all sorts shown on the screen, accompanied by talks and explanations and more or less discussion. Then as one wandered down the Section places one followed a number, from one to seventeen, different Sections meeting on that side of the Pier. These spaces, or rooms, were crudely partitioned off with composition-board, but they were all furnished with electricity and lanterns and everything in the way of equipment that any hall requires.

A particularly large space was set apart for the department of pediatrics and the various functioning organs of that department. The writer remembers that the Neurological Section was nearly the last one down the Pier, so there was no excuse for any neurologist complaining that he was lacking exercise in going from the



entrance of the Pier to his Section. And for a very good reason the Neurological Section was particularly well attended. You can use your own judgment as to what the good reason was; but the program was cleverly arranged, and the subject matter was such as attracted, not only neurologists, but general practitioners.

The largest section, naturally, was the Surgical Section, and a good deal of comment was made on the type of room in which they met and the constant going in and out of those in attendance.

As has been said before, the Pier was an experiment, and whether it would be repeated at another Chicago meeting is to be announced later. There was more or less noise. The street cars went between the two sides of the Pier; trucks rumbled by on a level with the Section meetings. And on Lake Michigan, on either side of the Pier, a steamer would occasionally stop in front of some Section and thoughtlessly blow of steam for half an hour—apparently not knowing that a great body of medical men were in “conference.” At all events, one of the neurologists was requested to go out and see if he could stop the noise, and the moment his face appeared on the other side of the Pier the noise ceased instantly! And this was done by “pure mental suggestion.”

Another important feature of the meeting was the visit to the new Association building, a visit that was well worth while and that demonstrated the necessity of more extensive quarters for an organization that does a business of a million and a half a year, doing an enormous amount of printing,—not only the *Journal of the American Medical Association*, but various subsidiary journals, which are virtually children of the American Medical Association. This building is a credit to the biggest medical journal that has ever been published, and still a greater credit to the Board of Trustees and the retiring manager, Dr. George Simmons, who has been the builder, not only of the *Journal of the American Medical Association*, but practically of the Association itself.

To further do Dr. Simmons honor, a body of 250 men gave him a dinner in the Gold Room of the Congress Hotel, a wonderful banquet; and it is surmised that many medical men from various parts of the country suffered from acute indigestion the following day! Dr. Simmons' old friends conducted the epoch-making event by speeches of greater or lesser length. Dr. Harvey Cushing acted as toastmaster; Dr. Frank Billings spoke of “Simmons: The Executive and Administrator;” Dr. William J. Mayo spoke of “Simmons: In Medical Education;” Dr. William O.

Jones, of Lincoln, Nebraska, who is now editor of the journal that Simmons originally started in Lincoln, spoke of “Simmons: The Citizen.” Dr. Hubert Work sent a written document to Simmons as “An Appreciation.” And Dr. William Thayer, of Baltimore, talked of “Simmons: The Man,” and presented to the man a portrait of himself, after which Dr. Simmons responded. The writer was the only medical man from Minneapolis at the dinner to Dr. Simmons.

Tuesday night the President-Elect, Dr. Wm. Allen Pusey, was installed before an immense audience at the Auditorium. Dr. Pusey spoke on some of the social problems in medicine and made some rather pithy remarks as to whether we were drifting with the wind or over a definitely determined route. Dr. Archibald Church, of Chicago, President of the Chicago Medical Society, gave a brief but very telling address of welcome to the members; and he departed a little from the custom of other speakers by making one sit up and wait for the next sentence,—witty and wise.

During Monday and Tuesday the Departments of Medicine gave dry clinics; and when the American Medical Association begins giving dry clinics at its annual meetings they must be looking forward to something in the way of clinical medicine and perhaps to the suppression, more or less, of papers, which will be a grand and glorious achievement.

On Thursday night the reception to Dr. Pusey was given at the Drake Hotel, where many of Chicago's society people were present and gave charm to the surroundings.

On Wednesday, Thursday and Friday the Sections were in session, and in some of them the meeting lasted only from 9:00 A. M., to 1:00 P. M. leaving the afternoon free for other work.

One of the enjoyable treats was to attend the meeting of the House of Delegates. The Delegates were present from all over the United States, and the meeting was a thoroughly enjoyable one. If one likes a little tiff and brawl and a bit of a scrimmage, one certainly got what one wanted in the meetings of the House of Delegates. They accomplished a great deal of good work, however, and many resolutions were passed which were of special interest to medical committees; and, as usual, the meeting was presided over by the speaker of the House, Dr. Frederic C. Warnshuis, of Grand Rapids, Michigan, and his able vice-speaker, Dr. Rock Sleyster, of Wauwatosa, Wisconsin.

There was a great debate on the prohibition

question, and when the Delegates adjourned they felt they had accomplished something by their endeavor to present to the United States Government the fact that the Government had seriously interfered with the prerogatives of the physician in prescribing whatever he thought was best for the patient; and a resolution was introduced to that effect and passed with but one dissenting voice.

There were three trustees to be re-elected, and we are glad to state that our representative from Minnesota, Dr. Thomas McDavitt, was elected the moment his name was presented. Then came the election of officers for 1924-25: The president-elect, Dr. Wm. D. Haggard, of Nashville, Tenn; vice-president, Dr. E. B. McDaniels, of Portland, Oregon; treasurer, Dr. Austin A. Hayden, of Chicago; and secretary, Dr. Olin West, of Chicago. Dr. West has been in the secretary's office for some time, and it is understood that he is to become the successor of Dr. Simmons, the general manager of the American Medical Association and its *Journal*. He is a fine, up-standing, capable man, who is popular from the top of his head to the soles of his feet. He has everything at his command that is under discussion; he is a fluent and easy speaker, and a man pleasant to meet; and as he comes from Tennessee he has the manner and accent of the southern gentlemen. Dr. M. L. Harris, of Chicago, continues as chairman of the Judicial Council, which a very important office. Dr. Harris has many problems to determine or decide and carry out, but he is capable of doing all this well.

The various societies that are sort of second cousins to the American Medical Association met on Monday; for instance, the Society of Internal Secretions, and a new organization, was admitted to the Section on Radiology.

The next meeting of the Association will probably be in Atlantic City, provided the hotels do not make their rates prohibitive. Chicago weather added interest to the meeting; it was cool and comfortable.

#### DOCTOR HALDOR SNEVE

Dr. Haldor Sneve, former president of the Ramsey County Medical Society, died Sunday June fifteenth, in San Diego, Calif., where he had gone for his health.

Dr. Sneve had been a resident of St. Paul since 1899, when he moved from Minneapolis to become chief surgeon of the Chicago Great Western Railroad, a post which he held for thirteen years. He was a lecturer on mecanotherapy

at the University of Minnesota from 1896 to 1899, and clinical professor of mental and nervous diseases from 1911 to 1914. He was formerly president of the Minnesota Academy of Medicine and of the Minnesota State Medical Association.

Dr. Sneve was born in Albert Lea, October 27, 1865, and attended the public schools there. He was graduated from the Medical College of Ohio State University in 1887 and started his professional career as assistant surgeon in the National Military Home, at Dayton, Ohio, the same year.

From 1888 to 1890, Dr. Sneve was assistant superintendent of the Dayton Hospital for the Insane. He was the author of numerous medical papers and a member of many medical and scientific societies. He was a member of the Minnesota National Guard for three years and served on the Draft Board during the World War.

Dr. Sneve is survived by his widow, who was with him in California at the time of his death.

Dr. Sneve was a man of very strong characteristics and very strong opinions. He was a persistent student and arrived at his conclusions from careful consideration of the data before him. He had a very definite personality, and was interested in the progress of neuropsychiatric methods. He studied Freudianism and investigated it until he became convinced as to its value. Dr. Sneve had many friends throughout the country, and he was recognized for his studentlike qualities, his ability to discuss a subject, and his very positive statements which he had attained to the exclusion of anyone who disagreed with him, and his deductions were usually right.

Both Minneapolis and St. Paul physicians will miss Dr. Sneve and his activities in medicine, particularly in neuropsychiatric work.

#### THE OSTEOPATHS AND CHIROPRACTORS IN SOUTH DAKOTA

There will be found in the transactions of South Dakota State Medical Association, on page 343, a ruling of the Attorney-General of South Dakota on the right of osteopaths and chiropractors to prescribe morphine and like drugs, which we think possesses large interest for both the medical profession and the public.

The ruling referred to was made in response to Dr. Alway's request for the same; and this request was prompted by a copy of a prescription sent to Dr. Alway by a physician who saw the original.



## NEWS ITEMS

Dr. P. F. Sanborn has moved from Minneapolis to Bemidji.

Work on a new contagious hospital building in Duluth will begin very soon.

Dr. E. H. Bayley has been re-elected president of Buena Vista Sanatorium at Lake City.

Dr. L. W. Morsman, of Hibbing, has gone to Vienna for special study during the summer.

Dr. R. L. Bolton has purchased the practice of Dr. Cassel at Adams, the latter going to Duluth.

The Montana State Medical Association holds its annual meeting next week (July 9 and 10) in Billings.

The Seventh District Medical Society of South Dakota held an adjourned meeting at Sioux Falls on June 17.

Dr. S. N. Mogilner, of St. Paul, will go to Europe in a few days to spend a year in post-graduate work.

Dr. Willard D. White, of Minneapolis, was married last month to Miss Evangeline Skellett, also of Minneapolis.

Dr. A. L. Kusske, of Minneapolis, has moved to New Ulm, where he will do eye, ear, nose and throat work exclusively.

Dr. Swan G. Wright, of Minneapolis, has gone to Europe for several months' special study, mainly in Berlin and Vienna.

Dr. Haldor Sneve, of St. Paul, died last month after a long illness. An appreciation of Dr. Sneve appears in our editorial columns.

Dr. Albert Scabell, of the University of Berne, Switzerland, last month was the guest of the Clinic of Drs. Lewis and Kern, of St. Cloud.

Dr. J. J. Heimark, of the Fargo (N. D.) Clinic, has gone to the Mayo Clinic, Rochester, to spend a year in study of mental and nervous diseases.

Dr. Thomas McDavitt, of St. Paul, was re-elected a trustee of the American Medical Association at the annual meeting in Chicago last month.

Dr. William E. Moore, of Sioux Falls, S. D., died at the age of 70 last month. Dr. Moore was a graduate of the Medical College of Indiana, class of '81.

Several cities of Minnesota will make strenuous efforts to get the U. S. Veterans' Tuberculosis Hospital for which \$1,500,000 has been appropriated by congress.

St. Ann's Hospital of Anaconda, Mont., has hitherto had no training school for nurses, although it is a hospital of 100 beds. Such a school will be opened in the fall.

The annual meeting of the North Minnesota Medical Association will be held in Duluth on August 4 and 5. The scientific program and the entertainment will be exceptionally good.

Dr. Carl A. Hedblom, head of the Division of Chest Surgery at the Mayo Clinic since 1917, has been elected professor of surgery at the University of Wisconsin Medical School.

The Minnesota Sanatorium Association will meet in Thief River Falls on July 19. The Oakland Park Sanatorium Staff and Commission will have charge of the program and entertainment.

Dr. A. L. Lindberg, of St. Peter, has become associated with Dr. C. F. Ewing at Wheaton. Dr. Lindberg is a graduate of the University of Minnesota and practiced a short time in Albany.

The Sioux Valley Eye and Ear Academy whose members are specialists of Iowa, Nebraska, and South Dakota, was in session yesterday in its twenty-third semi-annual meeting, in Omaha, Neb.

The Maternity Hospital of Minneapolis on July 15 opens a six months' course of training in the care of babies. The course is open to young women between the ages of seventeen and thirty.

The Wabasha County Medical Society will meet at Wabasha on July 10. Dr. W. H. Replogle, of Wabasha, and Dr. N. W. Walters and N. M. Keith, of the Mayo Clinic, will present papers.

Dr. H. F. Wahlquist, of Minneapolis, was married last month to Miss Margaret H. Schem, also of Minneapolis. Dr. Wahlquist is a recent graduate of the Medical School of the University of Minnesota.

Dr. Charles A. Reed, of Minneapolis, was a guest of the surgeons of the Great Northern Railroad at their annual meeting in Spokane, Washington, last week, and read a paper on "Back Injuries."

Dr. Franklin J. Bomberger, of Mapleton, died last month at the age of 58. Dr. Bomberger graduated from the Medical School of the University of Minnesota, and has practiced almost since that date at Mapleton.

Dr. Henry E. Douglas, of Blackduck, died last month at the age of 56. Dr. Douglas was a graduate of Queen's University Medical College, London, Ontario, class of '92, and had practiced in Minnesota about ten years.

Dr. Kenneth Phelps, of Minneapolis, has received notification of his election to membership in the American Bronchoscopic Society. This is an organization of about forty men who are particularly interested in bronchoscopy.

Dr. Ernest Hammes, of St. Paul, for some years associated with Dr. C. Eugene Riggs, has retired from this connection. Dr. Gordan R. Kamman is now associated with Dr. Hammes, their practice being limited to neurology and psychiatry.

Dr. E. F. Freymiller, who has been practicing in Cloverton about a year, has accepted a position with Drs. Arveson and Diamond, of Fredrick, Wis. Dr. Freymiller is a graduate of the Medical School of the University of Minnesota, class of '22.

The Ancker Hospital of St. Paul is to have an addition for patients with communicable diseases. The building will cost \$400,000. A taxpayer's suit to prevent the sale of bonds for money to erect the building has been defeated in the courts.

The State Department of Health of North Dakota is making a strenuous effort to have the state admitted to the registration area of the United States, and an urgent appeal is made by the Department to physicians to report all deaths and births in the state.

The Homeopathic State Medical Society and the Eclectic Medical Society of South Dakota held their annual meetings in Sioux Falls last month. The former society elected Dr. E. W. Feige, of Huron, president; and the latter elected Dr. A. W. Hyde, of Brookings, president.

Miss Eunice Hilbert, of Minneapolis, and Miss Maryma Foot, of Red Wing, senior medical students at the University of Minnesota, are the first women internes to serve in the General Hospital of Minneapolis. They were appointed internes last month under a new ruling of the Board of Control.

The Grand Forks (N. D.) District Medical Society gave a dinner last month in honor of Dr. James Grassick, President of the North Dakota State Medical Association. Dr. J. D. Taylor, of Grand Forks, an honorary member of the Association, and Dr. R. N. Evans, of Minto, made felicitous addresses; and Dr. Grassick replied.

Dr. Alfred Lind, who formerly practiced in Minneapolis, died last week in Cuba at the age of 62. Dr. Lind was a graduate of the Medical School of the University of Minnesota and later studied in Berlin and Upsala. He was one of the founders of the Swedish Hospital of Minne-

apolis. Dr. Carl J. Lind, of Minneapolis, is a son of Dr. Alfred Lind.

The roster of the South Dakota State Medical Association appears in this issue, on another page, and it shows, we believe, the smallest net loss of members for the Association in any year since its organization. This small net loss may be turned into a considerable gain for the year. Surely, South Dakota is still on the map and is sustaining its doctors.

Dr. H. H. Herring, an old-time practitioner of Minnesota, died last month in Minneapolis at an advanced age. Dr. Herring served in the Civil War as Captain of Company E., Ohio Volunteer Infantry, and studied medicine in Ohio after the war. He came to Lake Crystal in pioneer days and practiced there until eight years ago, when he retired and came to Minneapolis to live.

Dr. Leroy A. Calkins, assistant professor of obstetrics and gynecology in the Medical School of the University of Minnesota, and Miss Louise M. Powell, director of the School of Nursing at the University, will be lost to the University. Dr. Calkins goes to the University of Virginia, and Miss Powell goes to the Western Reserve University, where she becomes dean of the School of Nursing.

Dr. Benjamin H. Ogden, of St. Paul, died last month at the age of 64. Dr. Ogden graduated from Hahnemann Medical College of Philadelphia with the class of '85, and after practicing one year in Northfield located in St. Paul, where he practiced until his death. He was a member of the staff of the Ancker, Miller, St. Luke's, and St. Joseph's Hospitals, and of the Ramsey County and other Medical Societies.

Dr. Karl Kassowitz of Vienna, Austria, assistant to Dr. von Pirquet, the noted pediatrician, has made arrangements to join the Bartron Hospital Clinic of Watertown, S. D. Dr. Kassowitz has been with Dr. von Pirquet for a number of years and has done a considerable amount of original work. Except for some unforeseen occurrence, he should be with the Clinic by the end of June. As noted in these columns Dr. Hans Goldbach, also of Vienna, recently joined this Clinic, specializing in internal medicine and dermatology.

Dr. Walter Courtney, of Brainerd, died last week at the age of 68. Dr. Courtney was a graduate of Michigan, class of '83, and had practiced in Brainerd for nearly forty years. He was chief surgeon of the Northern Pacific Railway and Hospital Association for twenty-five years. He retired from his work several years ago, but was detained in the service as consulting



surgeon. He early took an active part in all medical matters in Minnesota, and was an influential and highly respected physician and citizen.

The *Pennant*, the banner of the North Dakota Tuberculosis Association, flung to the winds monthly by its editor, Dr. James Grassick, of Grand Forks, says that as a health resort during the summer season North Dakota is in a class by itself. "Its long hours of sunshine with its abundance of therapeutic rays, its wealth of warm weather which lacks debilitating qualities, its ozone-laden air that fans and stimulates, its cool invigorating nights that ensure restful sleep, are qualities that commend it. Your own state has so many natural advantages that you cannot afford to ignore them. Give North Dakota the publicity she deserves and she will become a veritable health resort."

The Sioux Valley Medical Association will meet on July 8 and 9. The business session will be held the morning of the first day, followed by the President's address, and an illustrated talk on "The Ideal Clinics—Pathological Conference" by Dr. H. E. Robertson, of the Mayo Foundation. This will be followed by a staff meeting of the McKennan Hospital. Luncheon will then be served at the McKennan Hospital. In the afternoon Drs. Behring, of Des Moines, and Mann, of Minneapolis, will each hold clinics. These will be followed by dinner at the Country Club. The morning of the 9th will be given over to presentation of cases by the Sioux Valley Medical Society. This will be followed by lunch at McKennan Hospital. The afternoon of the 9th will be given over to Drs. Leroy Crummer and R. W. Moore, of Omaha and Chicago, respectively. The meeting will be held in Sioux Falls.

#### Physician Wanted for Three Months

To take care of practice in North Dakota from now to October. Address 113, care of this office.

#### Fine Opening for a Physician in North Dakota

An opening for an A1 physician and surgeon in western North Dakota with excellent hospital facilities. Address 103, care of this office.

#### Physicians Wanted In Iowa

Physicians wanted for three or four Iowa locations. Little or no money required. For full data address Box 542, Cedar Rapids, Iowa.

#### Physician Wanted

Have an excellent location for physician who wants to make money right from the start. Nothing to buy. Address 111, care of this office.

#### Minneapolis Office Space For Rent

In the Metropolitan Bank Building. Separate office and share reception room with a dentist and physician. For particulars telephone Geneva 5441.

#### Experienced Laboratory Technician Wants Position

In a hospital for a private laboratory. Very high grade work guaranteed, with best of references. Several years experience. Address 109, care of this office.

#### For Sale

A surgeon's ophthalmic chair (Allison) and a dentist's cuspidor are offered for sale at a low price. Address or call upon T. V. Moreau, 40 South 7th St., Minneapolis.

#### An X-Ray Technician Wants Work In Twin Cities

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Physician Wanted In North Dakota

A good town in North Dakota in a prosperous farming community, mostly Norwegian people, wants a physician. Position will pay \$5,000 a year, and collections are good. Address 104, care of this office.

#### Salaried Position Open

A Minnesota institution desires a man of good reputation. Work will be very light and will be confined to the institution. Will pay a salary of \$200 and room and board for himself and wife, if married. The board and accommodations are those of first-class hotel. Address 106, care of this office.

#### Practice For Sale In South Dakota

General practice with opportunity for surgery. Modern town of over one thousand in heart of South Dakota corn belt; hospital; large territory; good collections; one place where doctors have made money. Protestant, Masonic, and some think a K. K. K. community. Reason for sale, moving to city. Some cash required, balance on terms. Address 108, care of this office.

#### Physician Wanted

To take my established Minnesota practice for invoice price of modern equipment. Fine town of 2,000, two railroads, paved streets, graveled roads, splendid community. Free office rooms in connection with drug store. Only one other active physician. Large territory. Unusual opening for one who is not afraid of work. I am going to specialize. Address 116, care of this office.

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 14

MINNEAPOLIS, JULY 15, 1924

Per Copy, 10c  
A Year, \$2.00

## SOME SURGICAL CONSIDERATIONS OF EXTRAPLEURAL THORACOPLASTY\*

BY ARTHUR A. LAW, M.D.

MINNEAPOLIS, MINNESOTA

Ever since the earliest medical history, or for two thousand years, the "great white plague" has been an omnipresent scourge, constantly taking a terrible toll of life from humanity. Up to the era of Koch and Pasteur this scourge remained unchecked, and the disease was considered practically incurable.

It has been only within the past fifty years that headway has been made in the conquest of this dread disease. With a better knowledge of its pathology the profession made real strides towards its arrest and cure.

Brehmer and Detweiler instituted the so-called "hygienic" method of treatment. This consisted of rest, forced feeding, and fresh air. Then Forlanini developed the operation of artificial pneumothorax in selected cases.

The Rollier treatment, or heliotherapy, was developed as another agent in the conquest of this disease.

Now, as the latest adjunct, comes the collapse of a diseased lung by operative intervention, an operation evolved and perfected by Brauer, Frederick, Sauerbruck, Saugman, Bull, and others. This operation in conjunction with the other treatments helps to balance the scales against the disease. This operation has been standardized and has been popular abroad, but has been grossly neglected in the United States.

Surgeons have learned much from the treatment of tuberculosis elsewhere in the body; they have noted how complete rest in this disease of the bones and joints was frequently followed by cures. This knowledge stimulated the research which culminated in the introduction of artificial pneumothorax, a method where in unilateral pulmonary tuberculosis sterile air is injected into the pleural cavity of the affected side and the lung is collapsed, giving it complete rest from respiratory activity, just as a tuberculous knee is put at rest by a plaster cast. There is little need to do more than call attention to the splendid results which have been obtained by this treatment.

Valuable as artificial pneumothorax is as an adjunct to hygiene, sun treatment, and sanatorium observation, cases are encountered, however, where the lung cannot be collapsed and put at rest by artificial pneumothorax, where strong synechiæ persist between the parietal and visceral pleuræ, which hold the lung attached to the thoracic wall, hold cavities open, and prevent the collapse in part or as a whole.

It is in these cases of unilateral tuberculosis with strong adhesions which do not permit of the lung being collapsed by the injection of air under pressure that the operation of extrapleural thoracoplasty is of value.

\*Presented at the April meeting of the Minneapolis Surgical Society, April 1924.



No case should be subjected to extrapleural thoracoplasty which has not for a long time been under sanatorium treatment where constant day-by-day study has familiarized the attending physicians with the personal equation of that case.

Only after repeated attempts at artificial pneumothorax have been tried and failed, and the failure checked by the *x*-rays, can the more severe operation be approached.

Constant *x*-ray study of these cases is valuable. Acute progressive cases of unilateral tuberculosis are not good subjects for the operation, nor are cases with tuberculosis present elsewhere in the body suitable for operation. This is particularly true of tuberculous peritonitis.

A mild degree of latent or healed tuberculosis in the other lung does not absolutely preclude the operation but obviously increases the risk, considering the increased burden of work put upon that lung after operation.

The best cases for this operation are the chronic cases of one-sided tuberculosis, where fibrosis has already occurred, as fibrosis is an indication of resistance and an expression of nature's attempt to heal and contract the lung.

It should be emphasized that all these cases which come to surgery should be under the care of medical men especially trained in the care of pulmonary tuberculosis, for in no other class of cases is it so necessary that there be complete co-operation between the surgeon and the medical specialist.

We believe all of these cases should have had long and thorough sanatorium treatment before

they are operated on and that they should have long post-operative care in a sanatorium, as well.

The early work of the European observers soon showed that the collapse of the lung as a whole was followed by much better results than attempts to collapse a specific part of the lung; so now the operation as standardized by Sauerbruch, where a segment of each rib from the first to the eleventh or twelfth is removed, is the operation of choice, where the incision is made close to the spine posteriorly, rather than through an anterior incision, which would seem to give easier access to all the ribs.

Baiffin and Groudit in the middle nineties gave the first intelligent and satisfactory explanation as to superior merits of the posterior operation.

"The rib articulating in front with the cartilage is yielding, and the anterior part of the rib can be pushed back or inwards, while the posterior portion is stiff and unyielding, immovably connected with the vertebral column and can only be moved up and down slightly. Further, the posterior part of the rib exhibits a marked concavity forward, or forms an arc, the radius of which is much less than the arc of the ribs elsewhere. The angle of the rib forms the most permanent point on the arc behind.

"Any section of the rib left in front of the angle of the scapula leaves behind a stiff unyielding piece of rib, which, according to its length, will prevent the soft parts from falling in and diminishing the costovertebral angles. On the other hand removal of the stiff posterior segments allows the anterior parts to be turned



Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 1, Case 6. Showing slight deformity after the two-stage operation.

Fig. 2, Case 6. Showing no loss of arm function after the two-stage operation.

Fig. 3, Case 6. Showing lack of deformity after operation and when clothed.

Fig. 4, Case 8. Showing incisions in the two-stage operation.

Fig. 5, Case 4. Showing the small amount of deformity after the two-stage operation.



Fig. 1

Fig. 2

Case 4, Fig. 1. Showing the diseased lung prior to operation; Fig. 2, showing collapse of lung after the two-stage operation.

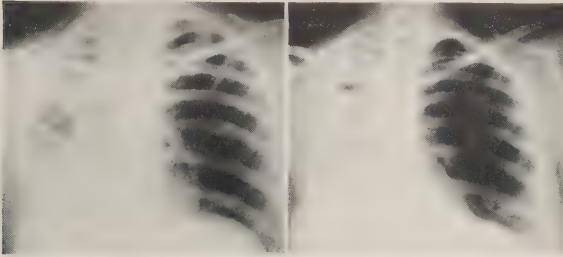


Fig. 1

Fig. 2

Case 6, Fig. 1. Showing disease of lung and cavitation of lung before operation; Fig. 2, showing collapse of lung after the two-stage operation.

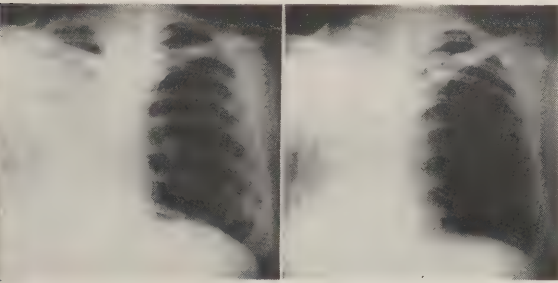


Fig. 1

Fig. 2

Case 8, Fig. 1. Showing disease of the left lung prior to operation; Fig. 2, showing collapsed left lung after the two-stage operation.

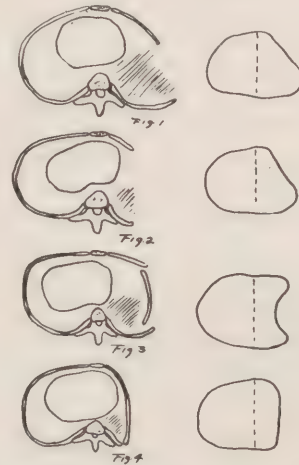
backward towards the spine so the arc of the curve of the rib is considerably decreased and the volume of the thorax correspondingly reduced, also the soft parts can move easily over the yielding anterior ribs but are stretched over the stiff projecting ends of the posterior ribs."

Sectioning alone of the ribs close to the spine permits the front portions with their costal cartilages to fall inward and partially collapses the lung, but the removal of segments of the ribs of from 2 to 15 cm. permits of complete collapse of the lung, with resultant rest.

Removal of the eleventh rib permits of the mobilization of the diaphragm and its retraction



Showing segments of ribs removed from the diseased side.



Showing collapse of lung from different types of operation, No. 4 being an extrapleural thoracoplasty.

upward; therefore a phrenectomy, in our opinion, is never indicated.

Rapidity of operating being imperative, the tyro or the deliberate operator should not attempt this surgery, for all respiratory effort is suddenly put upon the well lung during the operation, the patient lying on this well lung, increasing its embarrassment. In addition, with the collapse of the lung the heart is displaced with resulting cardiovascular distress. Prolongation of the op-



eration or anesthesia is then to be deplored considering the above mentioned factors. Complete resections should be finished in forty minutes and one of the two-stage operations in twenty.

It is inevitable that there must be a relatively heavy mortality from so formidable an operation when we consider how our patients are already weakened by the ravages of their disease, when we take into consideration the already restricted breathing space, further reduced by the operation, and when we realize the danger of a mediastinal flutter from cardiac displacement.

While some European operators advocate the one-stage operation, where all of the ribs except the twelfth are removed at one sitting, we believe the dangers are decidedly lessened by the two-stage operation, where only half the ribs are removed at one sitting and then within two or three weeks the rest of the ribs.

The presence of increased temperature is no contra-indication to operation. Where there is much expectoration it is wise to have the patient clear his lungs before operation, else he is liable to inspire the expectorate into the well lung.

The ordinary surgical rules obtain here as in other surgery as regards any condition which would preclude surgery.

As to anesthetics: Many of the European surgeons use local anesthesia entirely for these extensive rib resections. We have done them with local anesthetics alone, but we confess to a prejudice against having our patients present at the operation; also with the extensive manipulations we prefer them to be unconscious.

Ether is, we believe, always contra-indicated in pulmonary tuberculosis. Gas-oxygen, on the contrary, is so transitory and unirritating that it apparently does no harm. We have used it a great many times with no ill effects.

In our experience a combination of local anesthesia and gas-oxygen analgesia has been ideal.

An hour before operation the patient is given a hypodermic of 1/6 grain of morphine and 1/300 grain of scopolamine. At operation he is placed on the table, face downward, lying on the well side. A paravertebral injection of 0.5 per cent novocaine is made, about two inches from the spine, the skin being first infiltrated along the course of the incision. With long slender needles the periosteum of each rib is found and injected. Then, above and below the rib, the intercostal spaces are injected, blocking the intercostal nerves. The patient is then given gas-oxygen to the stage of analgesia by an especially trained anesthetist.

The length of the incision depends upon whether all or part of the ribs are to be removed. If all, it begins well up on the root of the neck, parallels the spine down to the tenth rib, then sweeps forward over that rib, making a long sickle-shaped incision. If the two-stage operation is done, of course a shorter incision is made, which is extended later at the second operation.

In this two-stage operation, sections of the ribs from 10 to 15 cm. are removed, beginning with the eleventh rib and working upward and taking all the ribs, including the fifth or sixth.

Within two or three weeks (or before new ribs can form) the secondary operation is done, the incision is extended from the top of the first incision to the root of the neck, and segments of all the remaining ribs are removed, again working from below upward.

The primary incision is carried immediately through all the tissues down to the ribs, when all the tissues are retracted forwards off the ribs and reflected up in one large flap, leaving the bony thoracic cage bare. In the upper part of the incision the rhomboidii muscles as well as fibers of the trapezius are cut across. This permits the scapula to rotate forward on the chest and exposes the upper part of the thorax.

Beginning with the eleventh rib and paralleling its long axis the periosteum is split with a knife over the section of the rib to be removed, then with a periosteal elevator the periosteum is stripped up around the circumference of the rib, after which a Doyen ram's-horn rib periosteal stripper is slipped under the loosened periosteum, and with this instrument the rib from the spine, as far forward as needed, is shelled out of its periosteal envelope, then with rib shears the anterior end of the rib is sectioned first, lifted up, and then the proximal end cut, every effort being made to remove it as close to the spine as possible. Working upward each rib is treated in the same way. When either in the single stage or the two-stage operation the upper ribs are approached, it is well to have an assistant under the drape pull the arm down so the scapula is rotated forward on the thorax and more room obtained.

The second and first ribs lie very deeply when approached from the rear. The first rib particularly is difficult of removal, for not only is it deeply buried in the muscle but its edge alone is presented to the operator and the curve of the rib is so sharp it is difficult to separate its periosteum. Here the many important anatomical structures make care essential. Fortunately,

however, only short segments are required to be removed from these two ribs.

After the ribs are removed the lung underlying immediately collapses, and the tissues overlying collapse with it. The pleura should never be opened in these operations.

As all of the periosteum is left after the ribs are removed we would expect to get some regeneration of bone from the periosteum, and that is just what happens,—new ribs are formed. Bone is reproduced more rapidly and extensively in young patients than in the old.

It is true the new bone is produced long after the lung is collapsed and with a coincident collapse of the soft tissues overlying the lung, therefore the new ribs formed hug the collapsed lung and have no tendency to induce expansion of it. Because these new ribs are formed it is very important that one point of operative technique be emphasized, namely, the removal of the ribs posteriorly behind the angle and as close to the spine as possible, for if the stumps of the resected ribs are here left long, the new formed ribs in the periosteum which is left become attached to the stumps, which are left and become ankylosed at a right angle with them, forming a triangle between the stumps of the resected ribs and the new ribs. In this triangle the pleura is held out and mechanically prevents the collapse of a portion of the already partially collapsed lung at the costovertebral angle.

In one of our earlier cases where a cavity remained uncollapsed after operation, the *x*-rays showed that the posterior segments of the ribs had not been removed close enough to the spine and mechanically interfered with complete collapse. We re-operated and removed the first rib and all of the segments, thus permitting a thorough collapse of the lung.

In another case, a young man, who years before in another clinic had five of his lower ribs removed and no secondary operation done, having only a partial collapse of his lower lung, new ribs had formed, and, with his long posterior stumps, these actually prevented further collapse, and therefore they were removed along with all of his remaining ribs, and complete collapse was obtained.

In closing the wound the muscles should be sutured in layers separately and the skin with sutures not too close together. A long Penrose drain is brought out through the most dependent portion of the wound and removed by the third day.

Dressings should be large and snugly strapped across to the other shoulder, chest, and abdomen, care being used not to apply them tight enough to embarrass respiration in the sound lung.

Bull has called our attention to the fact that where there are large cavities in the apices of the lung, that part of the lung does not perfectly collapse after extrapleural thoracoplasty. He advocates the further removal of the ribs from in front over the apex and stripping the pleura from the thoracic wall, the so-called apicolysis of Touffier. Then, to insure collapse, Baer advocated the introduction of paraffin or free fat, while Archibald has used pedicled flaps of the pectoralis major muscle.

Due to the change in the intrathoracic pressure following operation, some of these patients are cyanotic for a while; others have some mediastinal flutter from change of the heart's position. Due to the long standing of the disease and the fibrosis present, the heart has usually been displaced by this primary scar contraction, therefore the operative interference is rarely followed by further displacement of this organ. Convalescence is, however, usually uneventful.

Not all the danger occurs at the time of the operation, from shock et cetera. Within a week pulmonary edema and mediastinal flutter in the unsupported heart may cause a fatality. Later still from the great demands put upon the healthy lung, a focus of supposedly healed or latent tuberculosis may be lighted up.

One phenomenon has been noted in all of our cases: The sound lung undergoes marked hypertrophy to meet the increased physiological demands put upon it. This work hypertrophy parallels that of the single kidney left after a nephrectomy. This hypertrophy is well shown by serial *x*-rays taken over a period of time and often shows an increase of one-third in the lung volume.

There is some scoliosis shown, which with the hypertrophy explains why the deformity after operation is not more marked.

Coughing and expectoration usually decrease rapidly and markedly; and the pulse and temperature drop to normal. The most surprising immediate amelioration of symptoms is the marked decrease in the amount of sputum and tubercle bacilli. Both usually disappear. These manifestations are explained by the complete collapse of the lung and with it complete functional rest.

These patients usually gain in weight, look better, feel better, and insist that they are cured.

It is astonishing how little deformity follows



this operation; although the side is collapsed and the wing of the scapula is prominent there is little or no deformity of the shoulder girdle.

Almost all of our work on these patients has been possible through the courtesy of Dr. Ernest Mariette, Superintendent of Glen Lake Sanatorium.

Since January 22, 1923, to date of publication, we have done twenty-five operations for extrapleural thoracoplasty, on sixteen different patients, one only in one-stage, the rest being the two-stage type.

We have had only one operative death, where, in a man with severe unilateral tuberculosis in one lung and beginning involvement in the other (obviously a poor risk), we felt rather than subject him to a secondary operation the one-stage should be tried. This was done in forty minutes; he showed shock and died thirteen hours later.

In another instance, a woman, a bad risk, the first of the two-stage operations was done. She developed a peritonitis and died from that twenty-five days later.

A third, another woman, with extensive cavitation, had the first of the two-stage operation done on January 7, 1923, and died February 18, 1923. Autopsy showed cavities not collapsed and full of pus.

Most of the other cases have markedly improved. It is yet too early to claim any cures, although the clinical appearance would warrant the claim.

I am aware that our series of cases is too few to permit us to draw conclusions; they simply are a weather vane which points to parallel results in the hands of surgeons with much greater experience.

A study of statistics reveals that this operation carries a primary and a secondary mortality (within the first week) of from 10 to 15 per cent. This is readily understandable considering that all of these patients are poor risks, already depleted by the ravages of their disease.

Bull has reported thirty-seven cases with 45 per cent of cures. Saugman has reported forty cases with 33 per cent of cures. Archibald has reported fifteen cases with 25 per cent of cures. Sauerbruch has reported 438 cases with 35 per cent of cures and 40 per cent greatly improved.

This gives us then 530 cases with cures averaging 34.5 per cent and marked improvement in about 40 per cent.

Surely in a dread disease, so many of whose victims are doomed, 34.5 per cent of cures and 40 per cent of improvement furnish ample argument for the operation of extrapleural thoracoplasty.

## TUBERCULOSIS OF THE EPIDIDYMIS\*

By STANLEY R. MAXEINER, M.D.

Associate Surgeon, Minneapolis General Hospital; Attending Surgeon, U. S. Veterans Hospital No. 68, Minneapolis

AND

REUBEN H. WALDSCHMIDT, A.B., B.S., M.B., M.D.

Resident United States Veterans Hospital No. 68, Minneapolis

MINNEAPOLIS, MINNESOTA

The writing of this paper, with a review of the literature on this subject, was stimulated by the unusual opportunity which I have had of studying a number of cases of tuberculosis of the epididymis, as attending surgeon at the United States Veterans Hospital, No. 68, Minneapolis, Minn.

A large number of terms are used to distinguish this disease, such as "tuberculosis of the epididymis," "tuberculosis of the testicle," "tuberculosis of the genital tract," and "tuberculosis of the seminal tract," etc. The more recent authors seem to agree upon a generalized in-

fection, instead of a purely local one, and are more disposed to use the broader terms, such as tuberculosis of the seminal tract. Like this variety of names, one finds the same laxity offered in the methods of treatment.

Tuberculosis of the genital tract is invariably secondary to tuberculosis elsewhere, most commonly in the lungs or in the lymph glands. Kocher's statistics<sup>1</sup> showed in 451 cases of urogenital tuberculosis that came to autopsy, that over 80 per cent had pulmonary tuberculosis. Kuster states that by the more advanced methods of examination, urinogenital tuberculosis would always be found to be accompanied by lesions elsewhere. Walker believes that tuberculosis of

\*Presented before the Hennepin County Medical Society, May 7, 1923.

the epididymis is seldom primary, even in the lesions of the genito-urinary tract.

The path of infection of the disease is still in dispute, but authorities seem to be divided mainly into two groups: those who contend that the original infection is in the testes or the epididymis and that the infection ascends along the vas to the prostate; and those who believe the original infection starts in the prostate or the seminal vesicles and descends toward the testicle. Among the first group are found Reclus, Senn, and others, particularly the writers of practically all of our latest texts and systems. To the second group belong Guyon, who was probably the first, McFarland Walker, and Hugh Young, who are undoubtedly the strongest adherents. Numerous investigators report series of cases in which the primary infection seems to be definitely shown to be in the seminal vesicles and others in the epididymis. Salleron, for instance, reports 51 cases of tuberculous epididymitis examined by him, in which the seminal vesicles were affected in only one; while Walker reports 22 cases examined by himself with special reference to the seminal vesicles, and he found them to be involved in 20. Guyon<sup>1</sup> reported 26 necropsies in which the seminal vesicles were the primary site of the disease. He also reports an extensive clinical experience in which he found the seminal vesicles or the prostate to be involved in the tuberculous process. Ernest Mark<sup>2</sup> states that as a primary manifestation of urinogenital tuberculosis involvement of the body of the testicle must be considered extremely rare. Kidd,<sup>3</sup> on the other hand, states that he has seen tuberculosis confined to the testicle alone, and the same can be said of infections with the colon bacillus. Johnson<sup>4</sup> states that he believes infection occurs by both paths, but that the epididymis is first infected by a tuberculous embolus in the majority of cases. When the lesion is primary in the epididymis, it is probably hematogenous in origin.

McFarland Walker, whom I have freely quoted, has done much to establish the theory of descending infection. He describes the pathology in a typical case as consisting of an enlarged mass at the prostatic end of the vas, and another at the testicular end; while the portion between is nearly normal. Microscopic sections through the vesicular mass show a surrounding shell of lymphatic involvement, while the vas itself shows very little, if any, disease. The midportion also shows a normal vas with occasionally involved lymphatics. As the epididymis

is approached the lymphatic involvement gradually grows less and the mucosa becomes the site of the disease. The testicle does not show involvement.

Experimentally Walker inoculated the urethra in guinea-pigs with pyogenic organisms, and at the end of twelve hours obtained pure cultures from the seminal vesicles, epididymis, and from the lymphatics about the vas, while the lumen of the vas and the blood stream showed negative cultures. Although he had failed to produce similar results with the tubercle bacilli, Blandini had recovered them from the testicle, in similar experiments, at the end of thirty hours. He believes that the tubercle bacillus, like the pyogenic organisms and the gonococcus, causes a descending infection from the seminal vesicles to the epididymis through the surrounding lymphatics. A secondary ascending wave of infection may occur through the discharge of infected secretions. By previously traumatizing the testicle and inoculating the urethra with tubercle bacilli in rabbits, the lesions resembled in every way those found in the human. Walker further explains that as the infection spreads along the lymphatics, it encounters more suitable soil in which to flourish in the epididymis, which becomes swollen and gives rise to the first clinical manifestations of the disease.

Diagnosis in the average case with the classical symptoms is not especially difficult. Special points of diagnosis may be briefly stated to be involvement of the epididymis, instead of the testes, as in syphilis, painless onset, chronic course, suppuration, and sinus formation, the sinus of tuberculosis being posterior, while that of syphilis is anterior, and frequent presence of tuberculosis elsewhere in the body. On palpation the epididymis is thickened and can be felt as a crest on the orchis. It is usually nodular and not very tender. The vas may be nodular and thickened for a distance along the canal. In acute cases a conglomerate mass that is painful may resemble gonorrheal epididymitis so closely that prolonged observation, the finding of gonococci, aspiration, or even incision may be necessary to make a positive diagnosis.

Earliest symptoms usually relate to the lower pole and, later, to the upper pole. Caseation is also to be found first in the lower pole. The other epididymis becomes involved in a large number of cases. At the Thirtieth Congress of the German Surgical Association,<sup>5</sup> Burns reported 78 cases treated by unilateral castration, in which the other side became involved in 34



per cent in three months, 40 per cent in four months, and 60 per cent in the later cases. Buguljuboff<sup>6</sup> has reported 166 cases of tuberculosis of the epididymis, in which 137 showed involvement of the other side in the average time of fourteen months. These findings seem to check with our own series, composed of 15 cases, in which 66 per cent (10) showed involvement of both sides.

The treatment recommended for this disease varies from the most conservative to the extremely radical. F. Calet<sup>7</sup> states that "this form of tuberculosis should be treated by conservative methods. For 18 years I have not performed castration; I exclusively make use of injections, and amongst 200 cases of children and adults treated by this method I have not had a single failure." Els,<sup>8</sup> on the other hand, advises early operation removing the epididymis, but conserving the testicle when possible. If the testicle must be sacrificed, he recommends the reimplantation of a healthy piece of it into the scrotum for psychic and secretory effect. Schneider<sup>9</sup> recommends operation only after conservative treatment has failed. The operation should not be too radical, but should conserve the testicle whenever possible. He urges postoperative treatment in all cases. He believes both the urine and the semen are infectious, and he warns his patients accordingly. Young,<sup>10</sup> who advocates the radical operation in cases of tuberculosis involving the seminal vesicle and epididymis, has written a most complete article. He recommends the removal of both seminal vesicles and ampullæ with resection of both lateral lobes of the prostate through a perineal incision, and removal of the vas and diseased epididymis through an inguinal incision. By back-and-forth traction the deep portion of the vas is freed so that when possible all tissue is removed in one segment. He reports 15 cases treated by radical operation with only one death at the end of one year. At the United States Veterans Hospital, No. 68 (Asbury), we have chosen to treat these cases conservatively. They have all been studied by Dr. Josewich, attending specialist in tuberculosis, and have been treated medically for months before surgical treatment was advised. Operation was recommended in order to relieve the patient of one of his tuberculous foci. The epididymis and vas were removed and the testis preserved or resected when the disease had not advanced sufficiently to demand its removal. The proximal end of the vas was injected with pure phenol, and in the later cases the wound was closed with-

out drainage, even when a tuberculous abscess ruptured or was inadvertently opened during the dissection. Sinus formation is encouraged by drainage, and most of these wounds closed primarily, healed like incisions for hernia. Two cases with involvement of the seminal vesicles presenting indurations and swelling to the size of a small orange, on rectal examination, improved at once after epididymectomy, and the pelvic mass decreased one-half in size within a few weeks. The Young operation was considered in these cases, but as they were bad surgical risks a conservative operation was performed. We have also been reluctant to adopt this procedure until its success has been more definitely established. All operations performed by the author have been under local anesthesia.

Late postoperative care of all these patients has been supervised by Dr. Josewich. They have had general constructive treatment including rest, heliotherapy, tuberculin, etc., and some have been sent south to government sanatoriums. Home treatment is supervised, and the patients are instructed to report at regular intervals for re-examination. In this respect the treatment is superior to that obtained by most of our private patients.

The surgical treatment of these cases has been under the direct supervision of Dr. A. T. Mann, our chief of the surgical service, and to him I am greatly indebted for the privilege of following these cases and of operating on most of them. I am also indebted to Dr. H. M. Bracken, our past commanding officer, and Dr. H. D. Luse, our present commanding officer, for their aid in securing data and for permission to make these reports. Dr. Waldschmidt, resident at Hospital No. 68, sent a questionnaire to each of our patients, and from these questions and answers compiled the following charts. From these charts and our experience with these cases, we have attempted to draw a few conclusions.

#### CONCLUSIONS

1. In our series of 15 cases of tuberculosis of the epididymis, 10, or 66 per cent, showed extragenital tuberculosis before the operation.
2. The average duration of symptoms was nine and one-half months before operation.
3. Pain, which is ordinarily considered negligible, was present in 13 of our cases.
4. In 12 cases the first symptoms arose in the lower pole of the epididymis.
5. Ten Cases (66 per cent) were bilateral.

CHART GIVING THE ANSWERS TO QUESTIONS SUBMITTED IN FIFTEEN CASES

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pre-Operative Tuberculosis Elsewhere.....	T.B.C. Pulmonary T. B. Tonsil	T.B.C. Pulmonary Media-stinitis Left-Knee Meta-tarsal Phalangeal	T.B.C. Pulmonary	T.B.C. Pulmonary	T.B.C. Pulmonary	0	T.B.C. Pulmonary And Peri-toneal	T.B.C. Pulmonary And Kidney	0	0	T.B.C. Pulmonary	0	0	T.B.C. Left Hip	0
Post-Operative Tuberculosis Elsewhere.....	0	0	0	Kidney Bi-lateral T.B.C. Bladder	0	0	0	0	0	0	0	0	0	0	0
Duration of Lump in Testicle.....	20-Mo.	5-Mo.	8-Da.	2 to 3-Mo.	5-Mo.	?	6-Mo.	5-Mo.	10-Mo.	Right Side 6-Mo. Left Side 17-Mo.	24-Mo.	24-Mo.	7-Mo.	4-Mo.	55-Mo.
Pain.....	+	+	0	+	+	0	+	+	+	+	+	+	+	+	+
Origin in Lower or Upper Part.....	Lower	Upper	Lower	Lower	Lower	?	Lower	Lower	Lower	Upper	Lower	Lower	Lower	Lower	Lower
Unilateral or Bilateral.....	Bi-lateral 2	1 Un-descended 1	1	2	2	2	2	1	1	2	2	2	2	1	Bi-lateral 2
Epididymectomy.....	1	1	1	2	1	1 And Orchi-dec-tomy	1	1 And Orchi-dec-tomy	1	2	1 And Orchi-dec-tomy	2	1 And Orchi-dec-tomy	1 And Orchi-dec-tomy	1
Urination.....	Normal	Normal	Normal	Normal	Normal	Normal	Frequen-cy	Frequen-cy	Normal	Frequen-cy	Frequen-cy	Normal	Normal	Normal	Normal
Weight Gained or Lost in Pounds.....	+14	+	0	-10	+11	-30	+5	-13	-15	0	-20	+15	0	+10	0
General Condition since Operation.....	Im-proved	Im-proved	Same	Same	Same	Same	Im-proved	Im-proved	Im-proved	Im-proved	Same	Im-proved	Same	Im-proved	Same
How Long Since Operation.....	1-Yr. 8-Mo.	6-Mo.	4-Yr. 2-Mo.	1-Yr. 2-Mo.	6-Mo.	3-Yr. 2-Mo.	7-Mo.	7-Mo.	9-Mo.	9-Mo.	1-Yr.	6-Mo.	1-Wk.	2-Yr. 3-Mo.	1-Da
Tuberculosis of Kidney.....	0	0	0	+	0	0	0	+	0	0	0	0	0	0	0
Operations on Kidney.....	0	0	0	Bi-lateral 0	0	0	0	Ne-phrec-tomy 6-7-1922	0	0	0	0	0	0	0
Bloody Urine Since Operation.....	+	0	0	+	0	0	0	+	0	0	0	0	0	0	0

6. In 5 cases one testicle was so badly involved that it had to be removed.

7. Eight cases report their general health to be improved, while seven report their general condition unchanged.

8. One case had tuberculosis of one kidney, which was removed before the operation on the testicle. A second case developed tuberculosis of both kidneys postoperatively.

9. Bloody urine was observed in three cases, two of which had renal tuberculosis.

10. Because tuberculosis of the epididymis is

pathologically and clinically a secondary process, we have been conservative in our surgical treatment.

11. Treatment should be general, as well as local, and every available accepted treatment should be employed when indicated.

12. Local anesthesia was employed in all of the author's cases and seems particularly indicated in tuberculous patients.

13. Drainage promotes sinus formation, and primary closure should be employed even in the presence of a ruptured tuberculous abscess.



## BIBLIOGRAPHY

1. Quoted by McFarland Walker: *Lancet* (London), February 15, 1923.
2. Quoted by Ernest Mark: *Journal of Urology*, February, 1921.
3. Quoted by Kidd: Oxford Medical Pub., London, 1920.
4. Quoted by Johnson: *Surgical Diagnosis*, p. 733.
5. Quoted by Young: *Archives of Surgery*, March, 1922.
6. Quoted by Buguljuboff: *Archives of Surgery*, March, 1922.
7. Quoted by Robin: *Treatment of Tuberculosis*, p. 484.
8. Quoted by H. Els: *Deutsche medizinische Wochenschrift*, April, 1920.
9. Quoted by Schneider: *Munch. Medical Welschr.*, December, 1921.
10. Quoted by H. Young: *Archives of Surgery*, March, 1922.

## DISCUSSION

DR. E. KLAIVENESS: I was very much interested in this paper as it brings back to me the same experience that was fully established many years ago in the late '90's when I spent considerable time in Germany. At that time it was fully established and taught in all clinics that tuberculosis of the epididymis was invariably secondary, and consequently conservative methods of treatment were used. Prior to that time I had been in the far northern part of Norway where we saw very many cases. I recall many times we had these cases of tuberculosis of the epididymis, and how readily and quickly we would castrate them. Then when I came to Germany I was compelled to admit there was every good reason to follow their advice, and in my private practice I have followed it.

When I saw that this subject was to be presented to-night I looked over my old records and found a case I had in September, 1904. There was considerable tuberculous involvement in the patient's family. He came complaining of pain, and had typical involvement of the left epididymis in 1904. I placed him on the current treatment of that time. He followed a dietetic régime, etc., and gained in weight for a while. He came back to me in April, 1905, with the other epididymis involved, so that the condition was bilateral. He followed a simple way of living and went on for a number of years until three or four years later he passed away of tuberculosis of the lungs.

The fact that tuberculosis is a very slow disease may explain why we see some temporary improvement under this conservative treatment. It is almost a crime not to hold out much hope to a patient with early tuberculosis of the lungs. We have not arrived at that happy stage in genito-urinary tuberculosis. It is invariably secondary, and if we do not locate the primary lesions they will manifest themselves later on. I do not think the cases that have been reported have been permanently cured. We must still look for the time when we shall have better weapons with which to combat this disease.

DR. R. E. FARR: Dr. Maxeiner asked me to discuss his paper this evening, but he did not leave much for anybody to say. I might try, however, to accentuate some of the important points he made.

The diagnosis is not easy by any means in these cases. Often the primary lesion cannot be located.

This leads to the question of exploring the lesion. Until you have the exact location of the lesion and an incision is made into it the diagnosis may be impossible.

With regard to incising the testis: I believe it is desirable in some cases. We know we may incise this organ without harm provided we do not injure the blood supply. I would concur with the doctor in his conservatism, but would offer a word of caution that we do not make the mistake of leaving a tuberculous organ behind.

The matter of drainage in tuberculosis of the testis follows the same rules as in tuberculous lesions elsewhere. It is difficult to obtain healing if drainage is inserted, and many of these wounds will heal by first intention.

Another point relates to the use of some prosthesis after the condition is cured locally. We have introduced glass as a substitute for the testicle in a number of cases. Men are often sensitive regarding physical defects, and the substitution of a glass marble answers the purpose very well.

DR. A. T. MANN: I have been greatly interested in these cases because I see them often. I do think the text-books are wrong when they speak of painless epididymitis. Of course the pain does not correspond at all with that of acute pus formation.

In regard to ascending and descending infection: of course it can occur both ways, and where the infection is primary it does usually fall in the globus minor, but sometimes it is in the globus major, and it may also be primary in the testis. The artery which supplies the epididymis approaches the globus major at the upper pole of the orchis. I do not think it can be emphasized too much that an attempt for primary healing should be made.

Histologically, when the epididymis is involved and is removed, the testis may look normal, but I find in the records that usually when examined the testicular tissues under these areas do show some giant cells and some tuberculous involvement.

Dr. Maxeiner has done some very careful and painstaking work on these cases. I myself am inclined to feel that we must not wait too long before we institute surgical procedures because of the involvement of the testicle in the later stages. The process continues and increases, and I think we ought to remove the epididymis in order to preserve the orchis. Dr. Maxeiner, in some of these cases, has removed part of the testis and left a part of it in, with good healing, and it seems to me that is a very good thing to do. He spoke of putting it back as a transplant. This he has done. That tides the patient over the first period, but the end-result of all transplants of all organs of any complexity at all, is scar tissue.

Dr. Farr's use of these glass knobs is a rather interesting thing. R. Gersuny, who started the idea of paraffin injections, did his first paraffin injection on a man who wanted to get into the army, but had only one testis and couldn't pass the examination. Previous to this he had been using paraffin on dogs, but he injected paraffin in this case and the young man was accepted for the army.

## ADVANCING OUR FORCES IN THE TUBERCULOSIS CAMPAIGN\*

By J. A. MYERS, PH.D., M.D.

Medical Director, Lymanhurst School for Tuberculous Children; Assistant Professor of Preventive Medicine and Public Health, University of Minnesota

MINNEAPOLIS, MINNESOTA

A disease which causes one death in every eight throughout the world should demand one-eighth of the combined time of all agencies fighting disease. Tuberculosis should demand even more time since it works havoc, not only with man, but also with the animals upon which he depends so much for his food supply. Moreover, because of the chronicity of this disease, its victims require care over a much longer period of time than is true with persons suffering and dying from most other diseases.

In densely populated countries the people in adult life are few indeed who are not at some time impressed with the sorrow and destruction caused by tuberculosis through a visitation of this disease to some near friend or relative. Those persons with investigative minds who become interested in tuberculosis soon find that it constitutes a many-sided problem, but, sooner or later, nearly all turn to preventive measures as the most logical point of attack.

Much has been accomplished already in the prevention of tuberculosis. We know that the death rate from this disease has very materially decreased in the last fifty years. We know that the outlook for the tuberculous patient to-day is very much better than it was fifty years ago. We now occupy vantage ground with knowledge concerning this disease which has accrued through the past centuries, are able to profit from the mistakes of others and have a public sentiment against this disease, not ideal, but improving each day, and with a firm conviction that, for the most part, we are right and stronger than ever before for the continuation of the campaign against tuberculosis.

It is not my intention to attempt to present any new preventive measures, for we are told that there is nothing new under the sun, but there are certain phases of the tuberculosis work which have been criticised justly, and it is time that we give heed to the criticisms and profit from them.

*The Sanatorium.*—In the past much of our work has been directed toward the care of patients who have been badly broken in health, and whose chances of recovery have been greatly reduced because of the extensiveness of their dis-

ease. Seventy-five per cent and more of the beds of many of our sanatoria always are occupied by patients in the moderately and far-advanced stages of tuberculosis. Perhaps it is right, and, certainly from the public health point of view, it is good to get the advanced cases out of the homes and society into sanatoria, at least until they learn how to protect others from their disease. We must continue to provide for the advanced cases of tuberculosis the very best of care, for some of them are restored to health sufficiently to enjoy life again and in some instances resume work, while the more unfortunate ones must be made just as comfortable and happy as it is within our power to make them. However, in the future we must devote ourselves more diligently than in the past to the detection and care of the minimal cases of tuberculosis. In other words, we must put forth more strenuous efforts to prevent tuberculous patients from developing advanced disease. This sounds easy, but it is more difficult of execution than we are apt to think. With only 66,000 sanatorium beds in the country and an estimate of more than a million cases of tuberculosis it is obvious that we are in need of more sanatorium beds. In some parts of the country deplorable conditions exist. For example, one splendid sanatorium superintendent stated that he is unable to admit any minimal cases as long as there are advanced cases on his waiting list. In other words, if the minimal case desires sanatorium treatment in that institution he must wait until his disease is advanced, and thereby he has lost his best chances of recovery and has been a source of infection to many others. The fault lies, not with the superintendent, who is doing his best, but with the fact that an insufficient number of beds has been provided.

I should like to record a word of discouragement toward the development of any more sanatoria that are not of the first class. Unfortunately, there exist in this country so-called sanatoria where the discipline, food, and medical and nursing care are so poor as to make it quite impossible for the tuberculous patients to improve. Considerable effort should be directed toward the abolition of such institutions or the conversion

\*Presented at the annual meeting of the Minnesota Public Health Association, St. Paul, October 31, 1923.



of them into decent institutions where patients may not waste their time and even their very lives but may profit by every minute that they spend there.

*The preventorium and the school for tuberculous children* are among the most hopeful preventive agents ever introduced into the tuberculosis campaign. The preventorium should admit adults and children who have been exposed to tuberculosis, are malnourished, or are below par in some other respect. In other words, it should admit those persons in danger of developing clinical tuberculosis. Here they should be restored to health in a short time. A few months spent in such an institution may prevent years of invalidism. I hope we are not far from the day when institutions may exist where every mother may spend a few weeks each year in health building. This will be preventive-disease work of the highest type.

The school for tuberculous children may do an inestimable amount of good for those whose tuberculous disease qualifies them for attendance. Not only are the children benefited so far as their present disease is concerned, but they are taught the methods of preventing relapses and tuberculous reinfection in future years of their lives.

In this connection I cannot refrain from advocating that a short course in tuberculosis with a prescribed text-book be required of every school child. Perhaps a course of this kind offered in the grades and another adapted to junior and senior high school pupils would give the desired results. When the prohibition forces had introduced into certain text-books one or more chapters on the harmful effects of alcoholic beverages they dealt a death blow to the liquor forces. When the psychological moment arrived the little boys and girls who had been taught of the harmful effects of alcohol had become grown American citizens with the full right to use the ballot. This they did in no uncertain way, and the blow which they struck laid low one of the greatest enemies of the human race. A similar program in our schools to-day would do much to lay low another great enemy of the human race,—tuberculosis.

The value of the school for tuberculous children needs no further demonstration. It is our duty now to insist that this agent be introduced into every large school system in the country.

*The Observation Hospital.*—In every good-sized city there is need of a hospital for observation, classification, and distribution of tuberculous patients. This may be designated an obser-

vation hospital or may be likened to a great clearing house. Nothing in the name should indicate that it is a hospital for the tuberculous. The institution may be operated by a sanatorium, but should not be on the same grounds. To this institution should be sent all persons suspected of having tuberculosis as well as those recently found to have frank tuberculosis, but the suspects must be isolated from the frank cases. The medical staff of such an institution should consist of physicians representing every specialty in medicine, and every patient admitted to the institution should be examined by the various specialists in an attempt to locate not only tuberculous but also non-tuberculous pathological conditions.

After a satisfactory period of observation the patients found to be non-tuberculous may be discharged, other conditions having been discovered to account for their symptoms. Such patients have not been stigmatized by being admitted to a sanatorium for the tuberculous. This group may seem insignificant, but many persons have been treated in a tuberculosis sanatorium who were not suffering from clinical tuberculosis.

The patients found to be tuberculous are classified carefully as to the extent of their disease, and treatment is instituted. At the earliest possible date, that is, as soon as vacancies occur they are transferred to sanatoria, the minimal cases being recommended to those institutions equipped for the treatment of such cases and the advanced cases being sent to institutions giving preference to and offering the greatest advantages to them.

*The tuberculosis clinic* may become a powerful factor in the prevention of tuberculosis, but as yet in many places it has not been organized so as to be free from criticism and to accomplish its greatest good. Too often clinics are organized without the proper endorsement of the medical and nursing professions. They are operated in such a manner as to make careful work impossible. For example, a clinic was held in a country town recently where 90 persons were examined in one day by two physicians. No laboratory or x-ray facilities were available. It is plainly obvious that such a large number of patients cannot be examined carefully by two physicians in such a short time. From the entire group of 90 persons one case of tuberculosis was reported. It is splendid that this case was detected, but even the examiners must wonder how many minimal cases of tuberculosis they overlooked because of lack of time to make careful examinations. If such minimal cases were told

that they had no tuberculosis they were given a false sense of security and may become advanced before they seek medical advice again.

In certain rural communities for a number of years it may be impossible to have complete equipment for examinations, yet with the development of the portable *x*-ray and the small amount of laboratory equipment necessary we can see in the not too distant future the rural clinic fully equipped for nearly as good examinations as may be had anywhere. Even now everywhere we can reduce the number of patients per day so that the best possible work with the limited facilities may be accomplished by the physician.

In many cities a sufficient number of well-equipped dispensaries exist for tuberculosis work. Often they are open only two or three days a week, but as the demand arises more time should be devoted to them rather than to the development of new and improperly equipped clinics.

Our aim should be to extend the service of and to perfect clinics now in existence and to establish new complete ones only where there is a real need.

The type of patient admitted to free clinics is deserving of our most careful consideration. Some have urged that all persons applying regardless of their financial status be admitted. Others believe that only persons in moderate financial circumstances and the indigent should be admitted, while still others are of the opinion that only the indigent should be admitted. To admit all persons applying or even those in moderate circumstances to free clinics will have a strong tendency, just as it has had in the past, to decrease the interest of the medical profession in the tuberculosis campaign. Moreover, persons who are able to pay moderate fees to private physicians are rarely satisfied with examinations which cost them nothing. I have seen such persons take the time of physicians in free clinics, but go directly from such clinics to private physicians and accept the diagnosis and treatment prescribed by them and ignore the advice of the clinic workers. There is a peculiar psychology involved which we must not overlook.

*The Physician.*—From the house tops some specialists, public health workers, and others have been shouting "the average doctor does not know tuberculosis." This has done much to decrease the confidence of the public in the medical profession, to promote quackery, and to curb the interest of the members of the medical profession in tuberculosis. It is unfortunate that most med-

ical schools have failed to develop tuberculosis departments, and consequently the subject has been poorly taught to the medical students in the past. Most physicians have secured the greater part of their information through the reading of medical journals and books and from practical experience. While the state of affairs is bad I am not willing to admit that it is as bad as many people have been led to believe. Much false propaganda has been used. When we converse with many sanatorium patients we are impressed with the large number who went to the sanatorium on the advice of their family physicians. It is true that not a few were told that they had bronchitis, were generally run down, etc., and became advanced before their cases were diagnosed. We must not overlook the fact that a goodly number of patients are not treated at all or place themselves under the care of medical imitators who give them a false sense of security until death claims them or they become discouraged and seek medical advice only when all hope of recovery has vanished. The following case illustrates this point:

A young woman of 24 years noticed one autumn that her digestion was impaired and that she had lost considerable strength. Her parents had just heard of some miraculous cures said to be accomplished by a medical imitator in the same community, yet no one could be found who had ever seen one of the alleged cured patients. Being willing to accept the rumor the father bought a ticket of the imitator and started his daughter on three treatments a week. When the ticket was completely punched the family was induced to buy another and so on until some \$200 had slipped from the purse. By this time the father's suspicions were aroused as his daughter had grown worse in no uncertain way. He called in their family physician of former years who immediately diagnosed advanced tuberculosis. This physician in turn asked for a tuberculosis consultant who confirmed the diagnosis of advanced tuberculosis of the lungs in addition to intestinal tuberculosis of long standing. Her condition was far beyond any possible hope of recovery.

Some persons, perhaps because of overwhelming doses of tubercle bacilli, have had advanced disease from the very time they had their first warning of not being perfectly well. The following case serves to illustrate this point:

A young woman with two small children, doing all of her housework and busily engaged in social activities, stated that she had never felt bet-



ter in her life. Without a minute's warning she began to have hemorrhages from the lungs. The family physician found extensive disease of the upper half of the right lung, and within six weeks the patient was found to have tuberculosis of the kidneys. For such cases becoming advanced the family physician must not be blamed.

Granting that many physicians have not been interested in tuberculosis and are not expert in the diagnosis and treatment of this disease they represent a group so fundamentally trained in the science of disease that their potentialities must not be overlooked by those who wish to prevent tuberculosis. No other group can ever take their place in this campaign. The quacks and medical imitators spring up over night, but wither with the early rays of light. History has demonstrated over and over again that this is the fate of all who use methods not founded upon the rock or by any means attempt to defraud the people.

Your organization can do much to improve the medical situation which now exists in the state of Minnesota by encouraging the short course in tuberculosis for the general practitioners which is now being organized at the University of Minnesota. In this course an attempt will be made, not to make specialists, but to stimulate interest in early diagnosis and the prevention of tuberculosis.

Some of our present methods are discouraging specialization in tuberculosis. Recently in the Graduate School of the University of Minnesota we organized one, two, and three year courses for physicians who desire to specialize in tuberculosis. In talking with candidates for these courses we find that many of them hesitate and even turn to other fields because tuberculosis does not present a good future for the specialist. Not least among the arguments which they present is the idea that the social and public health agencies everywhere are arranging for free examinations of all people regardless of financial status. Moreover they state that as soon as the diagnosis is made some other agency appears to offer almost or quite free medical care. Of course this is exaggerated, nevertheless such ideas are extant. If in any way we are discouraging specialization in tuberculosis to the extent that the field is not attractive to the best minds desiring to specialize in some phase of medicine we are defeating our own ends. For just as in the past when Bremer, Detweiler, Koch, Trudeau, and many others, besides being engaged in private practice, did so much to ad-

vance our knowledge and thereby prevent tuberculosis so in the future we must have the services of strong minds of physicians devoting most of their time to this disease.

We have discussed a method by which more physicians now in practice may be enlisted in the tuberculosis campaign, but what are we to do about the physicians of future generations? To this question there can be but one logical answer, which is *that the teaching of tuberculosis in our medical schools be brought to the same high plane as has been attained in other phases of medicine, such as surgery, pediatrics, and obstetrics.* Such organizations as yours know the needs of physicians trained in tuberculosis. If you will point out this demand to medical schools your efforts will be rewarded to some degree by improved facilities for teaching tuberculosis and thereby you will do much to prevent this disease in the future.

*The Public Health Nurse.*—The importance of the public health nurse in the tuberculosis campaign apparently has not been generally appreciated for such nurses have not been supplied in sufficient numbers. I am convinced that not less than 70 per cent of tuberculosis work should be done by public health nurses especially trained in tuberculosis. It is they who should be endowed with authority to act as co-ordinators. They become well acquainted with the home, social and financial conditions of each patient and finally so gain the confidence of all concerned with the patient that they wield a tremendous influence in the prevention of tuberculosis.

At present our efforts must be directed toward a greater utilization of the centers where public health nurses may be especially trained in tuberculosis, toward convincing nurses that great opportunities for service await them in this field, and toward convincing health organizations that many more public health nurses are needed to effectively carry out the campaign.

*Publicity and Public Health Instruction.*—Through all the past ages it has been education that has brought people from darkness to light and from sorrow to happiness. This never failing factor—education—has done much to prevent tuberculosis, but it has not been utilized to its fullest extent. Education must be the watchword for every tuberculosis worker. There must be more education for physicians, nurses, and the general public. With the great public press, free speech, free grade and high schools, colleges, and universities, with that wonderful agent for making lasting mental impressions,—the mo-

tion picture film,—and with that splendid instrument by means of which we may now disseminate knowledge to the uttermost parts of the earth,—the radio,—never in the history of the world has there been such an advantageous time

to educate the people. Most of what has been done in the past is good, but we need to catch the vision of much greater accomplishments in the future even remembering that “where there is no vision the people perish.”

## ON THE PATHOGENESIS OF EPILEPSY

By ALDO MASSAGLIA, M.D.

Professor of Pathology, State University of Mississippi  
UNIVERSITY, MISSISSIPPI

Our readers will remember, we are sure, several interesting and valuable papers contributed to our columns by Dr. Massaglia while he was connected with the Medical Department of the University of North Dakota.—THE EDITOR.

Epilepsy (Gr. seizure) was already known and described in its more important clinical symptoms by Hippocrates as a disease characterized by fits or attacks in which there is loss of consciousness, with a series of tonic or clonic convulsions. Since that time clinicians have been able to distinguish many forms of epilepsy which differ more or less in their manifestations from the typical, so-called true or idiopathic epilepsy, but all efforts to establish their pathogeneses have been almost completely unsuccessful. Indeed, although in some cases of epilepsy we find lesions in the brain varying from degenerative processes of the nervous tissue to its destruction and replacement with neuroglia, in many cases “careful macroscopic, as well as microscopic, examination of the brains reveals nothing of unusual appearance.” (Delafield and Prudden<sup>1</sup>). We now know only that there exists a form of epilepsy, the Jacksonian or cortical epilepsy, marked by localized spasm, and limited mainly to one side and often to one group of muscles, consciousness not being lost, which has for a pathological substratum a lesion of some part of the cortex of the brain corresponding to those parts which give innervation to the muscles passing into spasm. But even in the Jacksonian form of epilepsy the occasional factor which determines the attack is not known.

Experimental research performed by means of faradization or by the destruction of a part of the nervous system has shown that there exist in the cortex of the brain epileptogenous areas (motor and sensory) which, when they are in a condition of hyperexcitability (individual predisposition or some intentionally determined irritation of the cortex), upon receiving some definite stimulus, cause an epileptic attack. From these

data Luciani<sup>2</sup> formulated his theory on epilepsy, both of the Jacksonian and idiopathic forms.

According to Luciani the motor and sensory zones of the cortex represent the center (organo centrale) of epileptic convulsions. When the zone is in a condition of hyperexcitability, any morbid excitement, either direct or indirect, upon reaching it, causes the epileptic seizure. This theory also explains the phenomenon of the so-called aura which precedes the epileptic attack.

But the theory of Luciani, the only theory which throws any light on the phenomenon of epilepsy, does not explain what morbid condition creates a permanent or apparently permanent state of hyperexcitability in the cortex in cases of the idiopathic forms, nor does it show the factors which, by acting upon the cortex, determine the idiopathic and Jacksonian forms.

Only the latent parathyroid hypofunction with its consequences, as first demonstrated by Massaglia,<sup>3</sup> establishes in the organism a morbid condition comparable to that of idiopathic epilepsy. In both of these morbid conditions, as is known, a patient in apparently good health may suddenly become struck with the attack (tetanic or epileptic); but our knowledge of them differs in this respect: in the case of parathyroid hypofunction we know the factor (parathyroid hypofunction) which predisposes the individual to the tetanic attack, and the cause which determines it (waste products of pregnancy, lactation, muscular fatigue, intestinal toxic products), while in that of idiopathic epileptic attacks we do not know what predisposes the patient to the attack, nor the determining cause of it.

Starting from the fact, then, that the latent hypofunction of the parathyroids creates a condition which favors the onset of convulsions, and from the fact that in some forms of epilepsy it has been demonstrated that the attack is preceded by a marked lowering of the blood-sugar content, which, as Dr. Walter Timme<sup>4</sup> of New



York, states, may be relieved by the subministration of glucose, I performed the following research on the pathogenesis of epilepsy:

In four normal dogs I established a latent hypofunction of the parathyroids by means of the removal of the two external parathyroids and only one of the two internal parathyroids. To accomplish this in some animals, the latter glands not being easily detectable, it was necessary to remove one of the two thyroid lobes. To lower the sugar content in the animals, as may happen as a result of a hypersecretion of the Langerhans' islands, in order to create the determining cause of the convulsive attack in an animal already predisposed to it, I injected strong doses of insulin (0.5 c.c. of U-20 insulin per kilogram of animal weight, inoculated subcutaneously). The injections of insulin were made after a lapse of time varying from fifteen to thirty days after the operation for partial parathyroidectomy, in order to permit the complete recovery of the wound, and to be sure that no disturbing symptoms resulted from the eventual parathyroid hypofunction, in other words, to be certain that the animals were only in a state of latent parathyroid hypofunction. In order to lower the amount of sugar in the bodies of the animals, they were kept fasting for five days prior to the inoculation of insulin. Four normal dogs, used as controls, received corresponding amounts of insulin, proportionate to their weights, as did the operated ones.

The injection of insulin caused no symptoms in the control animals, but the animals in a state of latent parathyroid insufficiency, about four to eight hours after the injection, suffered variable disturbances as a result of the inoculation. In one animal it caused a strong convulsive attack similar to that which characterizes the idiopathic epileptic attack in man. This attack was so strong that it killed the animal. In two other dogs the attack was limited to clonic tetanic convulsions, especially of the posterior legs, but the animals retained their normal consciousness, as usually happens in cases of Jacksonian epilepsy. In the fourth animal practically no symptoms resulted; this may be attributed to the supposition that, in all probability, supernumerary parathyroids were present which were able, with the

aid of the secretion of the one internal parathyroid remaining, to maintain normal the parathyroid function.

Although this study has only been begun, and will be continued, I believe that, having already obtained some important results, it is worthy of being communicated as a preliminary note.

From the results mentioned above, I have concluded that the lowering of the blood-sugar content by means of the inoculation of insulin in those animals which were in a state of latent parathyroid hypofunction, caused a tetanic attack, while in the control animals which received proportionate amounts of insulin, no morbid symptoms were noted. This fact shows that there exists an indirect functional correlation between the parathyroids and the Langerhans islands of the pancreas. This correlation was previously demonstrated by Massaglia<sup>5</sup> in a different way by means of experimentation.

The experiments herein reported determined in the animals a morbid condition which may be compared with, if not considered equal to, some forms of epilepsy. The results lead to the supposition that some forms of the disease (epilepsy) may be caused by a hypofunction of the parathyroid glands, which create the predisposition to the convulsive attack, accompanied by a hypersecretion of the islands of Langerhans which lowers the blood-sugar content.

It seems advisable, then, in cases of idiopathic epilepsy, to try using a treatment based upon the administration of parathyroidin and sugar,—a treatment which will probably induce a cure.

#### BIBLIOGRAPHY

1. Delafield, F., and Prudden, T. M.: "A Text-book of Pathology," twelfth edition, p. 1114, William Wood and Co., New York, 1922.
2. Luciani, L.: "Fisiologia dell' uomo" volume Terzo, p. 677, Società Editrice Libreria, Milano, 1912.
3. Massaglia, A.: "L'influenza della fatica nei cani parzialmente spariroidati." *Gazzetta degli Ospedali e delle Cliniche*, N. 105, Milano, 1906.
4. Massaglia, A., e Sparapani, G.: "Eclampsia sperimentale ed eclampsia spontanea degli animali." *Gazzetta degli Ospedali e delle Cliniche*, N. 69, Milano, 1907.
5. Massaglia, A.: "The Internal Secretion of Sandstroem's Glands. Parathyroid Hypofunction and Eclampsia." *Endocrinology*, vol. v, No. 3, p. 309, May, 1921, Los Angeles, Calif.
6. Timme, W.: Discussion of article by A. H. Rowe, "The Insulin Control of Diabetes Mellitus and Its Complications." *Endocrinology*, vol. vii, No. 5, p. 682, September-November, 1923, Los Angeles, California.
7. Massaglia, A.: "Contributo alla conoscenza della patogenesi del diabete mellito." *Società Medico-Chirurgica di Modena*, Marzo-Aprile, 1914.
8. "Beitrag zur Kenntnis der Pathogenese des Diabetes mellitus." *Centralblatt für Allgemeine Pathologie und Pathologische Anatomie*. Band XXVI, Nr. 3, 1915.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

JULY 15, 1924

## WATER POLLUTION AND WATER PURIFICATION

The time has evidently come when more attention should be paid to water supplies of cities, towns, and villages, and particularly now that the camping season is open and tourists from all over the country are passing through Minnesota, North and South Dakota, and other states, sometimes leaving behind them diseases of which they are the common carriers. It is sometimes a source of wonderment that so few tourists and travelers are equipped with some simple agent that will prevent them from contracting disease and incidentally from transmitting disease. People are advised when traveling to carry a certain amount of water to which is added some ingredient that will make the water perfectly safe, and the only ingredient that we have been able to demonstrate thus far is a preparation of iodine, the common tincture of iodine, one or two drops of which is added to a thermos bottle and which is sufficient to prevent any deterioration or infection getting into the water. The ordinary thermos bottle of large size can carry two drops of iodine without interference in any way with the drinking qualities of the water. This same preparation may be added to the water supplies of towns and villages connected with a known polluted stream; or a stream which is in a polluted area, and likely to be polluted by travelers, should have the same

treatment except in larger quantities. The iodine, or sodium iodide, in a filtration basin or pool will take care of an immense quantity of water.

In the large cities where the water supply is under more or less control for the municipality the filtration methods are usually sufficient to keep the water pure, particularly when it is examined chemically daily. Aside from that, however, there are other things to be considered. The water supply may be deficient in iodine salts. The Health Commissioner of Minneapolis has made a proposal that a certain amount of sodium iodide should be added to the filtration basins in the city so that the water will contain the normal amount of iodine needed by the human system. The amount necessary to be added would be so small that the most fastidious user of water would not taste it. This matter, of course, will have to come up before the Council; and they, not knowing very much about these things, will naturally apply to chemists and physicians and medical men generally for advice.

The agitation for the addition of sodium iodide to the water supply is based largely upon the conviction that much goiter could be prevented by iodizing the city water. Whether the number of cases of goiter in the city is small or large is immaterial, and the placing of iodized water at the command of water users will doubtless prevent, in many cases, the development of goiter or at least will produce in the individual the necessary quantity of iodine. It has been proved many times that the lack of iodine in water has produced goiter. Rats have been given water with and without iodine, and those that have the iodized water to take do not develop goiters; the others are quite apt to do so. The same experiments have been carried out in the food supply, the regulation of which has something to do with the production of goiter, because it either contains or does not contain a proper solution in which a normal amount of iodine is present.

Typhoid fever has been nearly eliminated from cities where the water supply has been controlled, and filtration and purification plants have been installed. But if, in addition to this, iodine were placed in the water it will probably do as much for the control of other diseases which are more or less prevalent and particularly so where the water supply is not under control. We were told some time ago of the experiments conducted in India along a stream of water. At the upper end were stationed fifteen soldiers; there the water supply was taken from its source. At the further end the stream passed through a village, where



fifteen other soldiers were located who drank the water with only an attempt at filtration through cheesecloth. None of the soldiers stationed at the upper end of the stream developed goiter; all of the men at the lower end of the stream had goiter, because of the polluted water—and they were relieved of their disability when removed to a clear water supply, when they in turn were supplied with the proper amount of iodine.

The Health Commissioner of Minneapolis is to be congratulated on his attempt to start something that will be of great value to the community, and a great example to other communities.

### "WHAT'LL WE DO?"

Recently a topical song has been running through the theaters, apparently much to the delight of the audience, entitled, "What'll We Do?" Of all the insipid, uninteresting, silly endeavors to sing something into the heart of the people, this is the flatest; but it evidently shows the trend of the public mind when an audience will sit absorbed and listen to a song with so much vapidness, one which can be compared only to a placebo in medicine. The title of this song, however, was suggested to the writer when he was thinking about the political situation of the present day. Within a month three political organizations, and innumerable smaller satellites, have conducted what they presumed to believe was for the benefit of the country. In spite of the fact that the first Republican Convention at Cleveland, went off in a dignified and seemingly harmonious manner, lasting four days and resulting in the nomination of the only possible candidate for the Republican presidency, the convention has been criticized and ridiculed by the press as a machine-made convention. But after hearing of the so-called Democratic Convention, and the meeting of a convention in which Mr. LaFollette sent, by messenger, a platform which was endorsed and adopted by the Convention, even before they really knew what was going on, LaFollette had been endorsed by them as their presidential candidate, and was given an opportunity to choose his own candidate for the vice-presidency—the title ought to apply, "What'll We Do?"

The Democrats in New York spent more than two weeks, ten days of which in a strict deadlock. And if the performances in New York are to be believed, as well as the newspaper reports of what occurred, certainly the politicians of to-day have gone raving mad! They claim

to voice the sentiments of the people, but to the mind of the interested observer they seem to limit that voice to a very few, and to those who, through hook or crook, hold political aspirations. In spite of all that has been said, the Republican Convention was conducted in a gentlemanly, openhanded way, and without the rule of the usual political boss. The Democratic Convention was evidently an effort to control by a few who had been accustomed to doling out for public consumption their own qualifications as candidates. Fortunately, before all of this raving, excited, turbulent, and deluded set of delegates had been confined in a madhouse the deadlock broke, and the Democratic nominee in the person of John W. Davis was made possible. Perhaps this nomination will save the Democratic party, as Mr. Davis is rated as high-class and of suitable attainments and would make good presidential timber, in spite of the fact that he is a lawyer and that his firm are attorneys for the J. P. Morgan interests, as well as for many other moneyed interests. Perhaps for that reason he will be opposed by a number of malcontents who think that Wall Street is running the country. This other party, not a third party, but another party in formation, composed of radicals, some farm-labor delegates, and other labor delegates, together with communists and socialists who are dictated to wholly and solely by the Wisconsin senator, may prove to be a large stumbling-block, attracting votes from both the Republican and Democratic parties, and may eventually solve the problem of what is to be done when a mixed group of political delegates are held in the hollow of one man's hand. It must be either rule or ruin, and unless this madness becomes epidemic none of us will know quite what to do. There will be all sorts of logic, illogic, and hysteria displayed in the coming campaign, and all of the principal issues will be constantly befogged by so-called arguments, invectives, abuse of opposing parties, and general dissatisfaction. But if in the goodness of time the country becomes prosperous and the harvest should be sufficient and generous, a lot of our political madmen will sober down and will gradually become quiet and approximately reach a normal plane in their existence; and a number of them will go down the plane in a sort of depression over the whole political situation.

The classification of this form of insanity is very difficult, and the most expansive term that may be used is that of manic depressive insanity, for that title includes innumerable opportunities

for the up-goers and the down-sliders, from the wildly excited to the unfortunately depressed, with rare periods of normal or even approaching the normal mental equilibrium. Consequently, we shall all be singing the same song, and wondering what we'll do! The one thing to do is to vote with whatever party or policy one adopts; but to vote is the solution of the whole situation. And if we've got to become a territory of crazy people, let it come; then let us rest and recover. But if we are bound to do the right thing by our votes, perhaps the better sense, the common sense of the people, will dominate. Until then we will hum softly the refrain, "What'll We Do?"

### SOCIAL PROBLEMS IN MEDICINE

The medical fraternity is confronted with a serious situation,—the social problem in medicine. And those who have read Dr. William Allen Pusey's address, as president of the American Medical Association, will understand what the social revolution in medicine may mean. At the present time the medical profession is assailed on all sides by all sorts of theories and theorists which include all manner of cults and all manner of social organizations and agencies which are dipping into strictly medical problems. As Dr. Pusey said, if medicine is to escape serious and damaging mistakes, it must consider these problems with deliberation, ambition, and wisdom. "This government of ours," said the president, "was organized in a spirit of individualism; given equal opportunity, men were expected to work out their own lives through industry, intelligence, and character. Competition was allowed to exercise its wholesome influence in stimulating men in their worldly efforts. It was the evidence, unconsciously, of the law of the survival of the fittest, long before Darwin had formulated that concrete conception and given it a name. Unconsciously the social trend has been continuously away from this spirit, and it must be so as the world progresses. But we are approaching wider, deeper, and more dangerous doctrines unless the medical profession proves its fitness to cope with the situation. And unless the trend of matters which are strictly medical are held in leash by medical men, we may become a socialistically inclined profession, and suffer from the paternalistic regime which hangs over our head constantly." Wiggam, the biologist, has referred to this. Samuel Butler called attention, seventy-five years ago, to the fact that the world must be brought down to essentials and funda-

mentals, and must consider medicine and its followers, the public and its believers and its unbelievers, from a biological and hereditary point of view.

All of this tittle-tattle, all of the uplift and much of the care of the unfit, the social wanderer, is undermining the foundation of medicine. Too much of the responsibility concerning the sick is left to lay people, who often acquire a lay theory which they attempt to put into practice. Of course, all this means that eventually the people must be better educated, but it means much more, that the people should inherit a better constitution, both mental and physical. Then education may produce results. But if the struggling and straggling parade goes on without a leader, without a common-sense doctrine, it is going to break itself against the inevitable stone wall which has been erected for centuries. The present-day eugenicist is seeking to eliminate hereditary disease, but it is going to take centuries to make the people understand. And all of the teaching that we as medical students receive on problems of heredity, the problems of breeding, of natural selection, and the normal educational efforts to build up the child's mind, is going to cover a long period. Medical men must get into line to educate the people in at least a few things,—the necessity of right living, the essential need of the recognition of disease in order to overcome the medical frauds and the fanaticism which has well-nigh swamped us.

The American Medical Association has done a tremendous amount of good in educating the doctor, and he in turn has done what he could to educate the people. Fortunately, there is less patent medicine used than in former years. There has been more opportunity for medical research in spite of the opposing factors. We are in the midst, too, of a vague, uncertain, seductive semi-medical era. There are all sorts of people running through the country opposing vivisection and vaccination, but, fortunately for us, these people belong to the class of the unfit, and they will soon eliminate themselves.

Dr. Pusey thinks that the greatest problem of all, and one of the greatest responsibilities of medicine, is to know how to treat men that are sick and injured rather than boost so much preventive medicine and the new social responsibilities, that these two last-mentioned should not be neglected, but the first one should be strongly emphasized. Every physician should seek to take a personal interest in the sick; and, with our knowledge of the terrific and deadly effect of in-



fectious diseases, none of the minor illnesses should be treated lightly, but should be investigated thoroughly and carefully. A recent and unfortunate incident shows how a little thing may take a human life, in the case of the President's son. These are the conditions in which the doctor is sometimes absolutely helpless, in spite of all the advances made in medicine, and doubtless there have been innumerable suggestions and remedies offered for the cure of such things with the same end-result,—death. When we understand better the work of infection, and some day arrive at the end of the problem which suggests a cure, then the old-fashioned and homely way of taking care of the sick will again predominate.

## MISCELLANY

### CONSERVATION OF VISION—COMMITTEE REPORT\*

As chairman of your Committee on Conservation of Vision I have the honor of making the following report:

Our activities during the past year have been largely in the same direction as those of previous years. Lectures have been given at a number of schools and colleges and to groups of nurses and other organizations who might be interested in bringing forward the importance of saving eyesight. Included in the number of the colleges addressed are the South Dakota State College, at Brookings, the State University, at Vermilion, and Dakota Wesleyan, at Mitchell. As a side issue of the work I gave a series of lectures on Hygiene at Sioux Falls College. All these efforts were received with interest on the part of students and faculties.

The principal points emphasized were the increasing importance of care of vision in our increasingly complex civilization, the need of teachers who are alive to this fact and who will co-operate in our efforts, and the especial importance of getting people to understand that treatment of any eye defect whatsoever is a physician's job. If nothing more has been accomplished than having a number of teachers understand the difference between an oculist and an optician the work has been worth while.

At my suggestion, addressed to the presidents of the colleges in the state nearly all have arranged to incorporate in their catalogues an announcement to the effect that prospective students should receive a thorough physical examination at the hands of a physician before entering college, and in case any defects are found they should be remedied in order that the student may be physically able to do the best work and get the most out of his college life. In case visual defects are found the student

is advised to have them corrected by a physician skilled in eye-work.

It is believed that this co-operation on the part of colleges will be of great value, and all members of the medical profession are urged to do their part in furthering the good work.

Respectfully submitted,  
J. G. PARSONS, M.D.,  
Chairman.

### SUGGESTED 15-MINUTE TALKS FOR MEDICAL SOCIETY MEETINGS

1. High Lights in the History of Medicine.
2. State and County Medical Societies: Their Place in the Community.
3. Community Health Problems: What We Owe to One Another.
4. Germs and the Rôle They Play in Disease and Its Transmission.
5. Common Colds, Complications and Consequences.
6. Diseased Tonsils and Adenoids.
7. Danger Signals after Forty.
8. Diphtheria.
9. Scarlet Fever.
10. Measles.
11. Small-Pox.
12. Typhoid Fever.
13. Infantile Paralysis.
14. The New-born Child and Its Special Care.
15. The Normal Progress of a Normal Child.
16. Child Behavior Problems.
17. Malnutrition in Infancy and Childhood.
18. Reasons for Regular Periodical Physical Examinations and of What It should Consist.
19. Tuberculosis in Children.
20. Tuberculosis in Adults.
21. The State Tuberculosis Sanatorium and the Work of the Advisory Commission.
22. The History of Cancer.
23. Cancer: Its Symptoms and Treatment.
24. Diabetes and the Use of Insulin.
25. Goiter: Its Significance, Prevention, and Treatment.
26. Heart Disease: Cause and Early Symptoms.
27. Bright's Disease: Cause and Early Symptoms.
28. Appendicitis: Symptoms and Dangers.
29. Constipation.
30. Use of X-ray and Radium in the Diagnosis and Treatment of Disease.
31. Modern Surgery: Its Safety and Accomplishments.
32. High Blood Pressure: Cause and Significance.
33. The Dangers of Overweight.
34. Alcohol: Its Effect on Health and Longevity.
35. Tobacco.
36. First Aid to the Injured, Discussing Shock, Hemorrhage, Fractures, Sepsis.
37. The Medical College of the State University.
38. Venereal Disease and the Work of This Division of the State Board of Health.
39. The Work of the Infant and Maternal Hygiene Division of the State Board of Health.
40. Quarantine of Contagious Diseases.
41. Insanity: The Need of a State Hospital for Study of the Disease.

\*This report was prepared for the South Dakota State Medical Association at its annual meeting in May, but was not received in time for publication in the transaction of the Association.

## NEWS ITEMS

Dr. J. A. Smith has moved from Minot, N. D., to Noonan, N. D.

Dr. O. J. Engstrand has moved from Brown-town to Breckenridge.

Dr. R. J. Morrisey, formerly of Hot Springs, S. D., is now located at Fort Pierre, S. D.

A dozen or more kinds of clinics are being carried on in the Northwest almost continuously.

Dr. Benjamin Thane, of Barrett, was married last month to Miss Lillian Mackall, of the same place.

Dr. R. W. Campbell, who formerly practiced at Blackduck, but has been absent for two years, has resumed practice at Blackduck.

Dr. Walter Christensen, who practiced at Lidgerwood until a short time ago, is now in Los Angeles, Calif. (2023 W. 7th St.).

Dr. E. S. Platou, of Minneapolis, will act as judge in the "Better Babies" contest at the North Dakota State Fair at Fargo, N. D., next week.

Minneapolis is seriously thinking of putting iodine into its water supply as a cure and preventive of goiter, which is prevalent in the city.

Money will be raised by a loan to push work on the Wesley Hospital building at Wadena so that it may be ready for occupancy in the early fall.

Dr. W. C. Chaney, who has been associated with the Mayo Clinic for several years, has joined the Sanders-Warr Clinic of Memphis, Tenn.

The North Dakota Traveling Health Clinic began a year's work on July 1 under the direction of Dr. Simonstad, of St. Paul, and Edna Goither as nurse.

The Minnesota State Board of Health has made a thorough survey of the city water supply of Minneapolis and pronounced the water perfectly safe.

The Beebe Training School for Laboratory Technicians of St. Paul graduated a class of sixteen last month. The sixteen students came from nine different states.

Dr. F. E. Harrington, Commissioner of Health, Minneapolis, has issued a warning against hemorrhagic smallpox, which has caused a few deaths in the City since July 1.

Dr. W. F. Maertz, of New Prague, who has been in Chicago doing postgraduate work in surgery for the past two months has resumed his practice in New Prague.

The *Times* of New Prague says that 1,200 people visited the new Community Hospital on the day of its opening last month—some advertising of a legitimate kind.

It is announced that Dr. C. F. Carstens, of the Rood Hospital of Hibbing, will be asked to become the post physician of the Hibbing Post of Spanish War Veterans.

Dr. George Edward, of Bruce, S. D., was married last week to Miss Elizabeth C. West, of Minneapolis. Dr. Edward is a graduate of the Medical School of the University of Minnesota, class of '97.

The Upper Mississippi Medical Society was in session yesterday in Bemidji. Drs. Walter Kramer, J. G. Cross, and Kenneth A. Phelps, of Minneapolis, were on the program for papers or discussions.

Dr. C. W. Bray, of Biwabik, was elected president of the St. Louis County Public Health Association at the annual meeting of the Association last March. Dr. H. G. Lampson was re-elected secretary.

The North Dakota Tuberculosis Association will make exhibits at the Minot, Devils Lake, Grand Forks, and Fargo Fairs. Physicians would do well to direct the attention of interested laymen to these exhibits.

The bequest made by Dr. H. F. McGaughey, of Winona, to establish a tuberculosis hospital in that city, has passed to the Winona Hospital for the establishment of a tuberculosis ward. The bequest now amounts to about \$34,000.

The public health nurse recently employed to conduct clinics in Todd and Wadena Counties will make her headquarters at the Fair Oaks Lodge Sanatorium and will work under the supervision of Dr. J. J. McKinnon, of the Sanatorium.

In a series of recent tuberculosis clinics held by the Hennepin County Tuberculosis Association in Minneapolis, 167 out of 665 persons examined showed signs of the disease, although not one of all those examined knew that he had a symptom of tuberculosis.

Dr. M. L. Samms, of Hope, N. D., has been appointed specialist in tuberculosis in the Fargo office of the United States Veterans Bureau.



Dr. Samms was a captain in the Medical Corps in the World War and attended the tuberculosis clinic at New Haven, Conn.

Every physician in North Dakota should cooperate with Dr. Whittemore, the State Health Officer, to get the state into the United States Registration Area. The essential thing is to see that physicians, health registrars, and undertakers make proper statistical returns.

Dr. R. D. Campbell, of Grand Forks, N. D., is taking his vacation on the Pacific coast, attended the Great Northern surgeons' meeting at Spokane, then the Pacific Northwest Medical Association at Vancouver, then a trip to Skagway, Alaska. Mrs. Campbell accompanied him.

Dr. R. C. Webb, of Minneapolis, read a paper on "Fractures of the Tibia and Fibula" before the Great Northern R. R. Surgeon's Association at Spokane, Washington on June 24th. He also attended the Northwestern Medical Association meeting at Vancouver, B. C., June 26-28.

The nurses in the parochial schools of St. Paul will hereafter be under the supervision of the City's Bureau of Health, thus avoiding duplication in the work or conflict of authority. Dr. B. F. Simon of the Health Department says this is the first time such plan has been tried in parochial schools.

Dr. Frank Dumont, of Freeport, died last week at the age of 53. Dr. Dumont graduated from the University of Paris, France, in 1894, and came to Minnesota in 1906. He practiced for a short time in Mankato and Browerville, and located in Freeport in 1913, where he practiced until his death.

The township health officers of Rice County, Minnesota, last month held a conference at Faribault, which was called at the suggestion of Dr. F. U. Davis, of Faribault. Its purpose was to study the work of township health officers and the observance of the laws of the county. It was the first conference of the kind held in Minnesota.

Dr. Harry M. Lufkin, of St. Paul, died last week at the age of 64. Dr. Lufkin was a graduate of Michigan (Homeopathic School), class of '83; of Hahnemann, Philadelphia; class of '83; of New York Medical College, class of '85; and he had done postgraduate work in New York and Vienna. He had practiced in St. Paul for thirty-seven years.

The Redwood-Brown Medical Society held its annual meeting at Sanborn last month. A strong resolution was passed against prescribing alcoholic liquors unnecessarily and unlawfully. The following officers were elected: President, Dr. J. L. Adams, Morgan; vice-president, Dr. Theo. F. Hammerstein, New Ulm; secretary-treasurer, Dr. W. A. Meierding, Springfield; delegates, Dr. G. B. Weiser, New Ulm, and Dr. F. O. Gray, Marshall.

In our issue of March 15th we announced the death of Dr. John H. Cheever at Oakland, Calif., who formerly practiced in St. Paul, and is now a resident of Arlington, Mass. But Dr. John H. Cheever now writes us from Arlington, Mass., for the source of our information, signing himself "Yours (in life)" He sends no affidavit nor physician's certificate; yet we believe him, and will say that our source of information was a long newspaper clipping, also without an affidavit or physician's certificate. We congratulate Dr. Cheever that he has the better of the argument.

At the August meeting (Aug. 26) of the staffs of the Lymanhurst and Parkview Hospitals of Minneapolis, Dr. Russell Gates will present a paper on "X-Ray Findings and Significance of Different Types of Tuberculosis in the Chests of Children." Dr. F. S. Bissell will deal with the "Röntgenologic Distinction between Tuberculosis and Non-tuberculosis Diseases of the Lungs." Dr. R. G. Allison will speak on the Röntgenologic Diagnosis of Gastro-intestinal Tuberculosis; and Dr. Leo Rigler will deal with "Röntgen Therapy in Tuberculosis." All physicians are cordially invited to attend these meetings.

The following Minneapolis physicians now occupy offices in the new Yeates Building at the corner of Nicollet Ave. and 9th St.: Gosin, D. F., 611; Gardner, Edwin L., 610; Litchfield, John T., 609; Daniel, Lewis M., 608; Olson, G. M., 607; Greenfield, W. J., 605; Pederson, R. M., 602; Hughs, L. D., 602; Schmitt, Samuel, 601; Schmitt, Aaron, 601; Sweetser, H. B., 512; Sweetser, T. H., 512; Lynch, M. J., 512; Hannah, H. E., 511; Hamilton, Arthur S., 511; Corbett, J. F., 507; Wyatt, O. S., 507; Williams, Robert, 502; Hedding, J. A., 502; Campbell, Lowell, 501; Poppe, F. H., 501; Aune, Martin, 411; Schmidt, George F., 411; Girvin, R. B., 411; Taft, John O., 411; Aurand, W. H., 407; Turnacliiff, D. D., 406; MacDonald, A. C., 405; Irvine, H. G., 405; Noth, H. W., 311; Larson, Clarence M., 311; Pineo, W. B., 309; Perry, R.

St. J., 305; Wright, C. D'a., 307; Ruud, H. O., 307.

The Northwest was unusually well represented at the Chicago meeting of the American Medical Association last month. Most of the papers from this territory were presented by Minneapolis and Rochester men; that is, from the University in Minneapolis and the Mayo Clinic in Rochester. The writers from the Mayo Clinic were as follows: Dr. L. G. Rowntree, Dr. Russell M. Wilder, Dr. E. C. Rosenow, Dr. William J. Mayo, Dr. Donald C. Balfour, Dr. C. H. Mayo, Dr. John S. Lundy, Dr. Carl A. Hedblom, Dr. Samuel Amberg, Drs. Norman M. Keith and C. W. Barrier, Dr. Henry S. Plummer, Dr. Frank C. Mann, Dr. Edward Starr Judd, Dr. George B. Eusterman, Drs. Gordon B. New and Frederick A. Figi, Dr. Harry Parker, Dr. Alfred W. Adson, Dr. Walter I. Lillie, Dr. Verne C. Hunt, Dr. Albert J. Scholl, Dr. Hermon C. Bumpus, Dr. W. C. MacCarty, Dr. R. D. Carman, Dr. A. U. Desjardin, from Rochester; Dr. Robert E. Farr, Drs. A. T. Mann and H. S. Willson, Dr. Laura A. Lane, Dr. J. A. Pratt, Dr. William F. Reasner, Dr. Max Seham, Dr. J. F. McClendon, Drs. Angus W. Morrison and H. S. Diehl, Dr. John Butler, Dr. Henry E. Michelson, from Minneapolis; Drs. Orianna McDaniel and E. M. Wade, from St. Paul; Dr. John A. Donovan, from Butte, Mont.

#### Physicians Wanted In Iowa

Physicians wanted for three or four Iowa locations. Little or no money required. For full data address Box 542, Cedar Rapids, Iowa.

#### Physician Wanted

Have an excellent location for physician who wants to make money right from the start. Nothing to buy. Address 111, care of this office.

#### Minneapolis Office Space For Rent

In the Metropolitan Bank Building. Separate office and share reception room with a dentist and physician. For particulars telephone Geneva 5441.

#### Wanted a Physician for Month or Six Weeks

To take care of my practice. No other physician here. Chance to make some money. Address Box 32, Valley Springs, S. D.

#### Physician Wanted For Two Months

In a good town in Minnesota. Will pay \$200 a month and board and other expenses connected with work. Address 122, care of this office.

#### For Sale

A surgeon's ophthalmic chair (Allison) and a dentist's cuspidor are offered for sale at a low price. Address or call upon T. V. Moreau, 40 South 7th St., Minneapolis.

#### Minneapolis Office Location Offered

Excellent location for physician on a busy corner in Minneapolis is offered. Reception-room with an established dentist. Address 92, care of this office.

#### An X-Ray Technician Wants Work

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Specialist Wanted

We have a fine opening for an eye, ear, nose, and throat man; also for a man in obstetrics, children's diseases, and internal medicine to join a group, and simply share the waiting-room cost. Town of 30,000, west of the Twin Cities. Address 102, care of this office.

#### Practice For Sale In Minnesota

Established Minnesota practice for sale at invoice; excellent gravel roads; sound dairying and farming community; large consolidated schools with gymnasium; collections good; modern offices with dentist. Specializing. Give qualifications. Address 119, care of this office.

#### Minneapolis Office in Fine, New Residential District for Rent

Some business already established is open for new doctor from present doctor who is leaving the city. Fine rooms, low rent, and splendid location. Offices over a drug-store. Address 95, care of this office.

#### X-Ray and Laboratory Work Wanted

Position in doctor's office, clinic, or hospital by a woman thoroughly efficient in x-ray and laboratory work. Five years experience in doctor's office as x-ray technician, bookkeeper, and stenographer. Have completed a six months laboratory course. Address 120, care of this office.

#### Physician's Office Equipment for Sale in Twin Cities

Consists of white enameled office unit of several pieces, also reception room furniture, sterilizers, bookcase, drugs, and other articles. Almost as good as new. Price very low for quick sale. Rare opportunity for beginner to get equipment at small cost. Address 122, care of this office.

#### Salaried Position Open

A Minnesota institution desires a man of good reputation. Work will be very light and will be confined to the institution. Will pay a salary of \$200 and room and board for himself and wife, if married. The board and accommodations are those of first-class hotel. Address 106, care of this office.



## Practice For Sale In South Dakota

General practice with opportunity for surgery. Modern town of over one thousand in heart of South Dakota corn belt; hospital; large territory; good collections; one place where doctors have made money. Protestant, Masonic, and some think a K. K. K. community. Reason for sale, moving to city. Some cash required, balance on terms. Address 108, care of this office.

## Physician Wanted

To take my established Minnesota practice for invoice price of modern equipment. Fine town of 2,000, two railroads, paved streets, graveled roads, splendid community. Free office rooms in connection with drug store. Only one other active physician. Large territory. Unusual opening for one who is not afraid of work. I am going to specialize. Address 116, care of this office.

## PHYSICIANS LICENSED AT THE APRIL (1924) EXAMINATIONS TO PRACTICE IN MINNESOTA

## UPON EXAMINATION

Name	School and Date of Graduation	Address
Arthur, Frances Harding	U. of Minn., M.B., 1923	Minneapolis St. Barnabas Hosp.
Carlson, Harold Wesley	U. of Minn., M.B., 1922	Henry Ford Hosp.
	U. of Minn., M.D., 1923	Detroit, Mich.
Colberg, Ernest Johnson	U. of Minn., M.B., M.D., 1924	St. Peter, Minn.
Gupte, Vasant S.	U. of Minn., M.B., 1923	St. Mary's Hospital, Duluth
Jacoby, Lionel Arnold	U. of Minn., M.B., 1923	1917 Emerson Ave. So., Minneapolis
Kitchen, Hubert Daniel	U. of Manitoba, M.D., 1921	Rochester, Minn.
Lapp, Victor Roy	McGill, M.D., 1921	Rochester, Minn.
Noble, Thos. Paterson	U. of Edinburgh, M.D., 1913	Rochester, Minn.
Rasmussen, R. Carl	U. of Minn., M.B., 1922	St. Mary's Hospital, Duluth
Settelen, Max Ernst	Basel, Switzerland, 1921	Rochester, Minn.
Travis, Walter T.	Cen. U. Ky., M.D., 1907	Ely, Minn.
Wheeler, Dan. Wilbur	Rush, M.D., 1923	Nopeming, Minn.

## THROUGH RECIPROCITY

Blackstone, Geo. R.	Northwestern, M.D., 1900	Eveleth, Minn.
Campbell, John Wm.	Rush, M.D., 1897	Fargo, N. D.
Counseller, Virgil Sheetz	Rush, M.D., 1920	Rochester, Minn.
Dies, John Livengood	U. of Penn., M.D., 1918	Rochester, Minn.
Griffith, Guy Everett	Northwestern, M.D., 1920	709 Duff Ave., Ames, Ia.
Griswold, Lincoln Bon	Loyola, M.D., 1923	60 So. Lincoln Ave., Aurora, Ill.
Hargis, Estes Henry	U. of Penn., M.D., 1921	Rochester, Minn.
Harrington, Ethel R.	Rush, M.D., 1917	Rochester, Minn.
Killins, Wendell Allensworth	U. of Nebraska, M.D., 1921	Rochester, Minn.
Merrill, Elmer Forrest	U. of Michigan, M.D., 1920	Rochester, Minn.
Monnich, Walter Arthur	Baltimore Med., M.D., 1910	108 Buckingham Apt., Minneapolis
Myers, Fred Earl	U. of Penn., M.D., 1921	Ely, Minn.
Parker, Stephen Thos.	Creighton, M.D., 1921	Rochester, Minn.
Parson, E. Lillian Bendeke	U. of Illinois, M.D., 1923	Elbow Lake, Minn.
Randall, Laurence Merrill	U. of Iowa, M.D., 1921	Rochester, Minn.
Sansing, Campbell	Tulane, M.D., 1895	427 6th St. S. E., Minneapolis, Minn.
Simon, Harold Ewart	U. of Pittsburgh, M.D., 1922	Rochester, Minn.
Swanson, John Albert	U. of Louisville, M.D., 1921	Lowry Bldg., St. Paul
Sweetser, Horatio B., Jr.	Harvard, M.D., 1921	2509 Pillsbury Ave., Minneapolis
Underhill, Marshall Scott	Northwestern, M.D., 1921	Rochester, Minn.
Veirs, Ruby Jayne Smith	U. of Louisville, M.D., 1920	1541 Lincoln Ave., St. Paul, Minn.
Wheeler, Roy McMillan	Northwestern, M.D., 1900	3980 Lake Park Ave., Chicago, Ill.

## NATIONAL BOARD CREDENTIALS

Henderson, Earl Fletcher	U. of Penn., M.D., 1918	Rochester, Minn.
Hufford, Alvin Ray	Loyola, M.D., 1923	Rochester, Minn.

## PHYSICIANS LICENSED AT THE JULY (1924) EXAMINATION TO PRACTICE MEDICINE IN THE STATE OF NORTH DAKOTA

Name	School and Date of Graduation	Address
Rostel, Hugo	U. of Munich, Bavaria, 1914	Arthur, N. D.
Hofto, Jalmar M.	Rush Medical College, 1924	Larimore, N. D.
Martin, Allen Walker	U. of Louisville, Kentucky, 1907	Jamestown, N. D.
Laughlin, Zach M.	Central College Phys. & Surg., Indianapolis, 1905	Fort Yates, N. D.
Hammargren, August F.	U. of Minnesota, 1923	Drake, N. D.
Simenstad, Lien Otis	Rush Medical College, 1924	Grand Forks, N. D.
Odegaard, Bernt	Chicago Coll. of Med. and Surg., 1916	Northwood, N. D.
Hunter, Alice M.	Rush Medical College, 1920	Grand Forks, N. D.
Mattson, Roger H.	U. of Minnesota	Stephen, Minn.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 15

MINNEAPOLIS, AUGUST 1, 1924

Per Copy, 10c  
A Year, \$2.00

## THE NERVOUS SYSTEM: A CLINIC\*

By WALTER D. SHELDEN, M.D.  
Mayo Clinic

ROCHESTER, MINNESOTA

### CASE I:

*Post-diphtheritic Paralysis:* This patient was in the hospital and seems to me to present a very interesting and practical case.

*History:* The story is that the girl was in good health until the development of this complaint for which she is under observation. She had diphtheria on February 8, and the features of interest are those that came as a complication. She had the diphtheria from February 8 until she received antitoxin February 22. She had 36,000 units. About the same time she received her first injection the symptoms we are interested in began. She first noticed that she was unable to read, and for about four or five days she was unable to read any ordinary print or the headlines in the papers, on account of a fusion of the lines. All objects close by were indistinguishable, such as ordinary type.

At about the same time she had difficulty in swallowing. She had no great difficulty in taking food, and she was not deprived of her nourishment, but fluid came from her nose. At the same time her speech was a little hoarse and nasal. These symptoms were of about two days' duration.

About a week later she was up and about the house, and then her feet became numb, tingling,

and weak, and at the end of two days she was unable to move her toes or to walk. The hands were also affected, but not in the same degree. She could move the fingers at all times, but there was marked reduction in the power.

This was about the first of March, and now she is, as you see, in a fair state of recovery. She has had quite a marked return of her powers; however, she still has difficulty in walking. When she tries to walk on her toes she cannot keep her weight on her toes and she cannot keep the weight on her heels. She has a sort of flat-footed gait. The tibial groups are still so weak that she cannot perform any of the ordinary movements of walking as she should. She still has quite a pronounced ataxia. She does not stand on both feet with her eyes shut, although she should be able to stand on one foot if she wished.

Objectively it can be demonstrated that she still has loss of reflexes. The tendon reflexes are gone in the knees and ankles; the Achilles jerks are both absent; and the sensibility in the foot is still slightly diminished, she feels pain and temperature without much disturbance, but there is still some diminution.

Her most marked sensory disturbance now is in the joint sense. She is unable to tell within a wide range in what direction her toes are moved. I tried to test her with the tuning-fork

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.



this morning, but she does not feel that as well as she does on the chest. Her sensory changes were much more pronounced at the time of paralysis than they are now. One might find a complete loss below the hip and the joint sense much more marked than now. The reflexes are absent now and may be for another month or two.

*Comment:* Without any doubt there will be a complete restoration of function and return of all reflexes. This is almost a typical story of a generalized type of post-diphtheritic neuritis. It is one that we meet commonly, and when the history is well established and the case is observed in the beginning, the diagnosis is not very difficult.

In the case presented we have a history of sore throat, but not all patients have such a history, and, if they do, it is not always known that the infection that produced it is diphtheria. We often see this disorder in adults, which is contrary to rule. These cases come from all types of minor infections in the throat that may have occurred as an accident. We have quite a number of patients who come with a history of tonsillectomy that has been performed six weeks or two months or three months ago. Tonsillectomy is a common affair, and when the membrane that remains after tonsillectomy appears it is taken as a natural consequence, and yet it may contain in its normal evolution the diphtheria bacillus and produce an unsuspected complication. One very rarely takes a culture after tonsillectomy. The development of this sort of thing is not unknown following wound infection, although it is rather infrequent. We have had three or four cases of this type, and they follow late in the course of operative wounds. The patient may come in for various things. Sometimes a clean wound will become infected, and this syndrome may be present. In quite a number of cases we have been able to culture diphtheria from the sinus or from the drainage sinus of an operative field, whatever it may be.

When the symptom-complex is complete, as it is here, with ocular palsy and faucial palsy, and then a rather rapidly developing picture of multiple neuritis, with loss of reflexes and disturbance of deep sensibility, and parasthesia, often-times with motor disturbances and complete paralysis coming on with rapidity, it is a pretty good sign of diphtheria itself, really more certain than a culture of the throat.

There are very few other types of disease that produce this same complex of peripheral palsy,

accommodation palsy, and the neuritis, as they occurred here. The paralysis of accommodation is usually the first to appear in the sequence and may occur from wound infection on the foot just as from anywhere else.

There are mild, abortive, or local forms in which the development is a good deal less marked. It is not uncommon to find loss of reflexes of the soft palate and pharynx in the course of the disease and that be the end of it. It may clear up in a week or ten days, and no more paralysis will be seen. In all the cranial nerves motor paralysis can occur,—in the pharynx, larynx, epiglottis, in the external rectus, or the other muscles in the eye. You may get facial paralysis. We saw an accommodation palsy, a bilateral facial palsy, an external palsy, an external rectus palsy in one such case, and we thought the patient was having an encephalitis until we learned that he had recently had a tonsillectomy and the probability of diphtheria was much greater. In fact, in some of these patients even three or four months after a tonsillectomy we occasionally may get a positive diphtheria culture in the pharynx, but a negative culture does not negative the whole situation by any means.

Of course, the most vital types of palsy are those that affect the vagus and produce bradycardia and tachycardia, and various cardiac disturbances which may be fatal, as may also those which involve the phrenic and respiratory centers. Such complications may be severe and fatal, but usually they are transient. If the patient survives, the respiratory function within a week or so is resumed.

Sometimes a local paralysis in remote parts may be evident, and such cases have been described. Sometimes this occurs in the muscles near the wound.

There is quite a controversy, and I do not know as it is yet settled, as to what the rôle of antitoxin is in the protection against this disorder. Some deny its protection, and some affirm it vigorously. It is very seldom in these days that diphtheria patients fail to receive antitoxin, although this youngster got it late, but it has not yet been proved that there is not some specificity in the germ that determines neuritis, and the protective influence of antitoxin may not cover that particular toxemia.

*Prognosis:* The prognosis is good. These patients all get well, usually within four to five months. Occasionally a case will run two or three months longer, but all patients recover within a year at the most. Their recovery is just

about in reverse of the onset. The reflexes all come back, and sensation becomes normal.

## CASE II:

*Post-diphtheritic Paralysis:* This girl is a sister of the first patient and presents a very interesting speculative problem about what may happen.

*History:* This girl had her diphtheria a few days after her sister. She followed through the same course, and if there is anything in the story of specificity that strain must have had it that struck this family. This child had about the same course of events, in about the same sequence. Her throat was more paralyzed and the sequence of symptoms in the arms and legs came on about the same time.

The fact that this girl has a cerebral diplegia, an infantile cerebral palsy, makes it very interesting to speculate what a diphtheritic palsy might do to a spastic type of individual, who has been so since her birth or a few weeks thereafter.

It is not known what was the source of the cerebral diplegia, but you can see in the behavior of her hand as she moves the fingers that, in spite of her neuritis, she is spastic. I could not get a Babinski sign. The left hand is more affected, and there is so much spasticity that she cannot extend her left wrist. The right wrist will come up, as you see.

(To patient): How old are you?

Patient: Eight—four—eleven.

DR. SHELDEN: You notice that she has quite a characteristic speech of the original disturbance. She has recovered her ability to swallow, and her sister says she is in about the same general condition as before, and I suspect that when she is entirely free of her neuritis the reflex in her ankles will come back. It is very likely that when she recovers from that condition her Babinski will come back, and her original spasticity will return in the lower extremities.

As you see, she walks with the scissors type of gait; she could never skip rope, jump, or run, and because of the spasticity could never do the things youngsters do with their hands. She cannot put her tongue out, and you can tell from her general appearance that she belongs in this spastic group.

*Comment:* I thought this would be a more interesting problem than it is for analysis, for I have not had the experience of studying out the evidence of diphtheritic paralysis planted on top of a spastic paralysis. The clinical picture is quite modified by the original trouble. You can

see that her gait and attitude are quite different from her sister's, although they have had about the same time in which to recover.

## CASE III:

*Tabes Dorsalis:* This patient has a cardiac decompensation and other evidences of circulatory disturbance which Dr. Dunn will discuss, but as a side finding Dr. Lloyd and others discovered that he has a pupil that fails to react to light, but does well to accommodation. There is a history of pain in his legs, none having occurred higher than his hip. The pains have occurred in various locations in his legs, and he describes them typically, namely, as intermittent spot-like pains. A certain spot on the leg is the target, and the pains occur every two or three minutes, or have longer intervals, and always hit the same spot, like target practice. The pain comes like a flash, very severe, always in the same spot. At the next attack the gun may turn to another area.

This is such a characteristic story of the pain of tabes that it is worth discussion for just a minute. It is in itself almost diagnostic and is often given the misnomer of "rheumatism." I do not think "shooting pains" is a good name for this symptom, unless you understand that it means shooting at the target. It does not run down the legs, but strikes one spot. It may have a linear direction, like a darning needle, not as long but as narrow. The nickel or quarter sized pain is the most characteristic and common in these cases.

It might be interesting to know what relation these signs and symptoms might bear to the development of his decompensation, because you might go on a very erroneous course and assume that these were rheumatic pains and that they might be a basis for the myocardial insufficiency, based on rheumatic infection. It does not necessarily follow that because he has characteristic pains of another type the basal cause of all is syphilis.

I wish to make one or two points about the diagnosis of syphilitic involvement of the nervous system, and the relative importance of the signs. We often hear the diagnosis discussed on the pupillary signs, the Argyll-Robertson type of pupil, and the loss of knee reflexes. I think of all the signs and symptoms these are the least important. In all the sensory changes are the most important, the most characteristic, certain, and constant. It is a real variety that tabes will develop without sensory disturbances, and the



sensory disturbances are so characteristic that there are very few other diseases coming into competition with it in the differential diagnosis. There may be all sorts of sensory disturbances, both deep and superficial sensibility. The characteristic thing is that there is dissociation of sensibility. Pain and temperature are much more affected than touch.

This man has just such a zone across the chest. His sense of pain or temperature is good on the feet and on the face, but this distribution varies a great deal. A zone may be an inch or two wide on the chest or just over the bridge of the nose. These are very common sites. Especially in high tabetics this anesthesia about the face is very common. The common finding is marked reduction of pain sense and temperature, with preservation of tactile sensibility in the feet.

These points are difficult to elicit. It takes a good hour to do a sensation test, but when you once find it you have a very valuable finding.

There are other types of sensory disturbances. For instance, the deep sensibility may be greatly

affected. This man's tendons are not sensitive to pressure, but his joint sensibility is good. It may be that his vibration sense is good. One or the other may be preserved, or one or the other may be disturbed, and it is necessary to perform all of the tests in order to know whether any one may be gone.

The things that we depend upon mostly are these sensory changes. One may find all sorts of tabetics with pupillary reflexes and knee jerks present, so we do not pay any attention to that. This man has a good knee reflex on both sides. It is important to test the Achilles reflexes always, because the Achilles reflexes are 70 per cent or more, perhaps more, valuable than the knee reflexes in the diagnosis of tabes. They are more often absent.

This man is interesting from the standpoint of general diagnosis because it may be that in these findings in the nervous system there is a good clue to the cause of his decompensation. The blood Wassermann reaction is positive, but these signs are just as valuable as that.

## DISEASES OF THE HEART: A CLINIC\*

BY ARTHUR D. DUNN, M.D.

OMAHA, NEBRASKA

Mr. President, Members of the South Dakota State Medical Association:

I certainly appreciate the honor of being invited to come before you and present a series of heart cases. When Dr. Clough first suggested this to me I accepted with alacrity, but since being here and seeing the array of clinical material afforded I wonder at my temerity at having accepted the invitation. The cases provided by Dr. Willy are of great interest and it is impossible to do justice to them without intensive study.

### CASE I:

*Diagnosis: Syphilitic Aortitis; Aortic Insufficiency:* This man is forty-seven years old and is the same patient in whom Dr. Sheldon has just demonstrated tabes dorsalis. I shall take up the cardiac phase of the case.

The onset of his cardiac complaint, which brought him to the physician, was eight months ago, the first symptom being shortness of breath; secondly, there was swelling of the "stomach"

and of the legs; thirdly, cough, the onset of which was simultaneous with shortness of breath, and easy fatigability. We ask ourselves, with the knowledge that he has tabes, whether this cough was of a brassy character, such as one hears in aneurysmal dilatations of the aorta. Fourth, he describes a very peculiar type of breathing, and one wonders from the description given whether it was not of the Cheyne-Stokes type. He says that while going to sleep he "would forget to breathe" and would wake up smothered and struggling for breath.

I will state in the first place that there is nothing of significance in the examination of the head except the stationary pupils. The teeth are good; there is no definite evidence of tonsillar infection and no enlargement of the submaxillary glands. As we look at the patient we see a man who is fairly well nourished but who looks rather older than the age given. We note immediately the distension of the abdomen and the swelling of the lower extremities, which pit on pressure. There is a rather violent arterial pulsation in the neck. There is no particular distension of the

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.

veins of the face or neck in the sitting position. His breathing in the sitting position seems fairly easy.

In the examination of the heart we note that the apex beat lies well without the nipple line, under the sixth rib and in the sixth interspace. On palpation the apex beat coincides with the outer limit of cardiac dullness.

In examining this patient I should like to call your attention to the palpatory method of outlining heart borders. In my experience it is very much more accurate than percussion. I think a great many of us have difficulty in differentiating tone qualities and in differentiating pitch. Phylogenetically this might be explained by the late accession of hearing, palpatory sensation being the earliest thing to which the organism was sensible, unless it be light. I have repeatedly checked myself with the fluoroscope and find that I can outline the heart very accurately with light palpation, while if I attempt to do this by percussion it is not unusual to miss it by two or three, or even four, centimeters.

The enlargement here is very material. The apex lies, roughly, some 10.5 cm. to the left of the midsternal line, while the normal distance should be 7 or 8 cm. The breadth of the heart is about 15 cm. at the fourth interspace, when it should be in the neighborhood of 11 or 12 cm. The aortic breadth in the first interspace is about 9.5 when it should be 7 cm.

At the base we have a slight systolic blow and a diastolic murmur, blowing in character. These murmurs are heard best at the first interspace on the right and the diastolic murmur is transmitted in the usual way down the left of the sternum.

There is fluid in both chests; there is fluid in the abdomen; there is edema of the lower extremities; the liver by palpation can be outlined fully four finger-breadths below the costal arch in the nipple line.

We have failed to elicit the well-known signs of aneurysm, such as the tracheal tug. There is no difference in the right and left radial pulses as to time, and no palpatory differences as to tension. The blood pressures, however, show a difference between the right and the left, the right being systolic 135 over 90, the left 170 over 90. This discrepancy in blood pressures falls within what one occasionally sees in normal individuals. In a case of this kind, however, especially with the possibility of syphilitic aortitis in mind, one speculates on the possibility of a piling up of inflammatory exudate about the

mouth of the innominate, narrowing the entrance to this vessel, thus producing a lessened blood flow into the upper circulatory tree on the right side.

When we endeavor to put this puzzle together, we are forced to the diagnosis of aortic insufficiency; we have the phenomena that belong to that lesion, including the diastolic murmur, which is practically pathognomonic of an aortic insufficiency. This diastolic murmur is rather soft, blowing in character and does not replace to a great degree the second sound. I think it is often difficult or impossible to estimate the size of the lesion in a case with broken compensation, but the evidence in this case points to a minimal, instead of to a maximal, lesion of the aortic valves. If this man has a mild degree of aortic insufficiency, such a degree as we should not expect to produce decompensation from the mechanical defect alone, why has he a broken down circulation? Why do we have an aortic insufficiency in a man of forty-seven years, apparently healthy? We find no great increase in blood pressure to account for a cardiac breakdown. We find nothing in the urine to support the diagnosis of a hypertensive nephritis, but in the examination of the blood we find a 4+ Wassermann reaction and therein the probable explanation of our clinical problem.

Let me call to your attention that we have a marked dilatation of the aorta, that it is palpable in the suprasternal notch, and that we have an insufficiency of the valves; and let me remind you again that we have signs of tabes and that we are dealing with a late type of syphilis. The relationship of syphilis to the diseases of the aortic valves in the adult cannot be too strongly emphasized. Probably 80 to 90 per cent of aortic insufficiencies occurring *de novo* in individuals between 25 and 50 are specific in origin. Therefore an aortic insufficiency developing in an adult demands a careful examination of the patient for evidence of syphilis. About 1900 Heller and Döhle first made their differentiation of specific aortitis from the ordinary arteriosclerosis so commonly found in the aorta. This work was corroborated by Chiari from the pathological standpoint, and later the spirochetes were found in the tissues. It is an old saying that syphilis loves the arteries, and especially is it fond of the aorta. It produces definite lesions, with which I trust most of you are familiar. It is easily differentiated anatomically from the ordinary arteriosclerosis. The disease is characterized by a peri-arterial inflammation, resulting



in deposits of mononuclears and plasma cells around the vasa vasorum in the media. This lesion gradually chokes off the nutrient vessels to the media, producing a great deal of inflammatory reaction around the vessels so obstructed, with a hyperplasia in the media. Later necrosis occurs in the area with scarring and retraction. Syphilitic aortas are recognized grossly by these alternating areas of hyperplasia and of atrophy and thinning. The vessel is wrinkled in spots, the color is a metallic bluish white, it has a definite sheen, and has little of the yellowish fatty deposits so characteristic of arteriosclerosis. In the clinic in Vienna in 1904 and 1905 the association of the syphilitic aortas with tabes and paresis was emphasized. At autopsy they expected to find definite manifestations in the aorta in 50 to 75 per cent of cases dying from paresis or tabes.

We hardly need emphasize the importance of syphilis as the cause of aneurysm, because fully 90 per cent of the aneurysms of the aorta are on a syphilitic basis. We looked for aneurysm in this man but could not demonstrate it. The relationship to angina pectoris should not be forgotten. The acute, intense, agonizing type of angina, with retrosternal burning, distribution of pain to the shoulder and down the arm, is particularly likely to be of syphilitic origin. It was on the basis of such cases that Vaquez built his theory of the cause of angina pectoris as being due to irritation in the nerve trunks lying in the adventitia, which theory was later taken up by Allbutt.

This case offers some rather interesting therapeutic speculations. As we stated before, there is not enough of a mechanical element to account for his heart failure. But heart failure, in the last analysis, is always due to a failure on the part of the muscle. The muscle cannot carry the load that is put upon it, whether that load be excessive or whether it be normal or subnormal. In this case we cannot find any unusual load that is being put upon the heart muscle; therefore it is strange that the heart muscle should be playing out in a man of forty-seven years who has led an active life. I think we are almost forced to assume one of two possibilities: Either the absence of resiliency in the aorta is the cause of the failure, or we have a definite syphilitic myocarditis. It is well known that syphilis can attack the myocardium and that in a definite number of cases typical perivascular syphilitic lesions are found. Syphilis not only attacks the myocardium, but may even attack the pericard-

ium. I have seen a case of hemorrhagic pericarditis in a case of syphilitic aortitis with regurgitation. I could throw on the screen sections from this pericardium and from the same patient's aorta, provided I did not give enough of the aorta to recognize the anatomy, and you could not tell the difference in the pathological lesions. I feel that in this case we are forced to assume that the bulk of the lesion is in the myocardium and that energetic antisyphilitic therapy will do much for this man. It will restore his compensation and in all probability maintain the heart in a state of compensation for many years. It is in such cases that prolonged intensive therapy is most indicated. The antisyphilitic therapy should be energetic. It does not mean a little potassium iodid or a little mercury. He should have many injections of salvarsan or neosalvarsan. We have given fifty or sixty injections before satisfactory results were obtained. Dr. Willy asked me whether the neosalvarsan or the salvarsan would be better, and I spoke for small doses of neosalvarsan in the beginning, with mercury, carrying out both methods synchronously. Dr. Willy told of some deaths that had occurred in the Massachusetts General Hospital from salvarsan injections in similar cases. In the small number of cases we have had we have never had any bad results. The difficulty about the mercurialization after the arsenic is the consumption of time. We must contrive so that the disease does not become too much of a burden to the patient. This man will have to have a lot of treatment, and the more we can crowd into a limited period the more likely will he be to stick to it, and the more likely will he be to be able to finance it.

Q. What sized dose of neosalvarsan would you give?

DR. DUNN: A very small dose, not more than 0.15 gm. at first and hold to small doses until sure of tolerance. It may be dangerous to give large doses.

Q. What is the best way to give the mercury?

DR. DUNN: As long as the patient is in the hospital I should give inunctions. It is difficult to get these patients to carry out "rubs" at home, and giving the mercury by mouth is a more or less unsatisfactory, slipshod method. We are at present using intravenous injections of flumerin, a preparation which has recently been brought out by Dr. Hugh Young, of Baltimore, and regarding which there are some very optimistic reports.

## CASE II:

*Chronic Heart Muscle Insufficiency; Aortic Insufficiency; Arteriosclerosis.*

This man is sixty-seven years old, but it has been impossible in the time at our disposal to get a connected history of the onset and development of his trouble. He knows he has had high blood pressure for two years, varying from 200 to 160 systolic. For the last two years he has felt "that things were not all right," but there is no definite analysis from him as to how he felt when they were not all right. He said his heart "was wrong;" there has been a sensation of "tightness or pressure" in the heart region, and he said that if he overate it would hurt him or injure him. He tires after half a day's work on his farm.

I should like to emphasize at this point the early symptoms of heart failure. It is easy enough to suspect heart failure when there are symptoms of stasis, such as extreme dyspnea, profound gastro-intestinal disturbances, swelling of the feet, orthopnea, and so on. Every patient who complains of fatigue, of tiring at his usual occupation, should be granted a careful examination of the heart and investigation of the circulatory system. This man says if he stooped over his heart would bother him, that he would get a peculiar sensation in the chest. During this past year he began to have shortness of breath on exercise, so you see the symptoms commonly inquired for arrived a considerable time after definite evidence of cardiac disturbance had developed.

(Examining patient.) I feel that we cannot pay too much attention to the examination of the sinuses, the mouth and throat in all of our cardiac cases. We are endeavoring to find causes in these cardiac cases and to remove loads. The whole problem is whether the heart muscle can carry the load. Any load that we can remove is worth the effort, and all infections must be considered in the light of loads. We must also consider them in the light of the deleterious effects on the heart muscle. This man's teeth are in good condition, and I find nothing demonstrable in the throat. I had my attention very forcibly called to the importance of infections in cardiac conditions in elderly people some years ago, at the time I was making some special studies of syphilitic myocarditis. A man came in with symptoms of heart failure and angina. He had an aortic insufficiency, and a dilatation of the aorta, with a 4+ Wassermann reaction. He was sent to the hospital with a diagnosis of

syphilitic aortitis, and was treated with neosalvarsan and mercury, but he died. The autopsy showed the syphilitic aortitis and the aortic insufficiency where the syphilis had invaded the valves and produced defects. We were examining all hearts at that time for evidences of syphilitic infection of the heart muscle. In this case, to our astonishment, we found the heart muscle riddled with foci of polymorphonuclear leukocytes, which were due to invasion of the heart muscle by a streptococcus. That man told us definitely that he had a sore throat before his heart failure began, but we had discounted the sore throat.

In the examination of our patient we note first the enlargement of the thyroid. This enlargement seems to be quite diffuse, is not nodular, but in the presence of cardiac symptomatology every thyroid should be investigated. In fact, every case of obscure heart failure in middle aged or elderly people should be investigated for toxic adenomata. There is no evidence of such adenomata, and Dr. Willy tells me the metabolic rate is normal, so we can rule out the thyroid as a cause of the heart failure.

The palpable arteries are hard, tortuous, and can be rolled under the finger. The examination of the heart shows the apex well within the nipple line in the fifth interspace. The apex beat is broad and heaving. There is no particular widening of the aorta. At the apex we hear a first sound with a diffuse, rather harsh, systolic murmur, which is transmitted to the axilla. As we travel from the apex to the base of the heart this murmur becomes more marked, and it reaches its maximum intensity when we arrive at the first interspace to the right of the sternum. This murmur is heard well in the fourth interspace in the nipple line on the right, so we are not so much disturbed about the transmission of this murmur beyond the nipple line to the left, for it is heard all over the precordium. Associated with this murmur is a blowing, diastolic murmur. The diastolic murmur is heard best, as is quite commonly the case with diastolic murmurs in arteriosclerosis, in the first interspace to the left. The murmur is harsh; it is rough; it might even be described as somewhat musical in character.

There is no fluid in the chest or in the abdomen, no particular enlargement of the liver, and no swelling of the feet. We have none of the usual signs of cardiac decompensation. We are in the period before decompensation has set in.

The urine, so far as albumin and sugar are



concerned, is negative. The blood Wassermann reaction is negative.

The diagnosis is chronic heart muscle insufficiency, incipient to be sure, aortic insufficiency on an arteriosclerotic basis, and a general arteriosclerosis. The aortic insufficiency is established by the pathognomonic diastolic murmur transmitted down the left of the sternum. The aortic diastolic is the one pathognomonic murmur we have. If a case comes to autopsy and you do not find a valvular defect, the aortic insufficiency was there just the same but was due to relaxation of the aortic ring. There is only one murmur, so far as I know, that is heard in this area that can cause confusion, and that is the diastolic phase from the venous bruit in the neck that is occasionally transmitted down to the base of the heart. So in this case we can establish the aortic insufficiency. We cannot establish a leakage in the mitral valve. We have no presystolic murmur or protodiastolic murmur, such as occurs with mitral stenosis, and we must say that the diagnosis of mitral insufficiency due to organic disease of the mitral leaflets is, in this case, extremely hazardous. The diagnosis of general arteriosclerosis is definitely established by palpation of the arteries, which diagnosis is supported by the loud and harsh systolic murmur at the base. Investigation in this case for syphilis should be made. There is no general evidence for that disease. The blood Wassermann reaction is negative. One might drive the point so far, especially if there was anything suspicious in the history, however, as to do a spinal puncture and a spinal fluid Wassermann test in the effort to throw light on the cause of the heart failure. However, this man is sixty-seven years old and in the age in which we get aortic insufficiency from arteriosclerosis.

This case brings up the whole problem of diagnosis and management of hypertension, if we had the time to go into it. Hypertension is the big medical problem of the day. You can pick up numerous articles and be convinced by the theories advanced, unless you happen to know differently. One of the most beautiful articles was brought out by Moschowitz three or four years ago in which he said it was the tired business man, the strenuous individual who did not know how to play, who worked all day and then took his business associates to dinner at night, to the Follies after dinner and to supper after the Follies, who developed hypertension. That was all very fine, but Moschowitz had never seen the large number of hypertension cases we see out

here on the prairies in men who have lead a rather cow-like existence, in comparison with their brothers on the stock exchange.

Inasmuch as we do not know the cause of hypertension, our therapy is a makeshift. In the first place, hypertension cases may well afford to spend some time at rest in a hospital. We can then ascertain how much the rest and taking the individual out of his environment affects his hypertension. We can get some idea of the value of work and rest. Secondly, we can estimate the blood urea, and it seems to me this type of case is one in which the blood chemistry is of value. We always have to answer the question of diet, and there would seem to be little value in subjecting a patient to an abnormally low protein diet if there is no urea retention. Again, we can ascertain by careful recording of the blood pressure whether it can be lowered by sodium nitrite. By the use of sodium nitrite we can often drop the blood pressure 30 to 40 points without disagreeable symptoms. We can try the effect of hot baths on the blood pressure. In a study of three or four weeks we can learn a great deal about the therapy of the individual case and make treatment less of a hit and miss game.

I wish to re-emphasize here the importance of infections. We do not know the cause of hypertension or the cause of arteriosclerosis, but it is not unreasonable to assume, from the "patchy" localization of the vessel wall lesions, that we may be dealing with damage due to small thrombi in the finer vasa vasorum. If one studies the early cases, especially with albumin in the urine, especially those with definite mouth and sinus and tonsillar infections, one will occasionally see cases in which after removal of the infection, if the experiment is well carried out and well controlled, there is marked reduction in blood pressure attributable to the removal of the infection alone. In one patient who came under observation we had the tonsils and teeth removed seven years ago for nephritis with hypertension. Five years later the blood pressure was normal, when it had been 200, and the patient was doing full work on the farm. Too frequently we take out infections in the same way as we lock the barn after the horse is stolen. The removal of focal infections in hypertension is always early therapy.

In this case the arteriosclerosis has existed for a long time and the whole question is one of protective therapy. One of the important things in protective therapy is to adapt the individual

to his occupation. This man will not be able to farm any longer. Some day we will probably take up the sociologic problem of what to do with people with damaged hearts. If we take a patient into the hospital, get him up and around, and send him back into the type of occupation that will produce decompensation again within a few weeks, we do not accomplish much. I think Dr. Willy will bear me out as to the many cases of decompensation treated at the Cook County Hospital, in Chicago, that redevelop their decompensation within a few days after being discharged from the hospital well compensated.

#### CASE III:

*Diagnosis: Polyserositis; Adhesive Pericarditis; Ox Heart:* In this patient we have a different puzzle. To diagnose it is like trying to reconstruct a prehistoric animal from a jaw bone and a few teeth. This man had "typhoid" at nineteen years of age. He took sick suddenly, was in bed for two or three weeks, and says he does not remember the doctors looking for spots on the abdomen. He was up and around for a short time, he does not remember whether for a few days or a month, before he went to work; then he had a relapse and was in bed for three or four weeks. We question whether this man had typhoid when he was nineteen years of age. He is fifty-one now, so that was over thirty years ago, at a time in which every disease running a febrile course was likely to be diagnosed as typhoid. It is of interest to know that at twenty-one years of age he had shortness of breath and on account of this shortness of breath was unable to work during an entire summer. This trouble was also attributed to typhoid fever. His present symptomatology dates back to 1919, when he first noticed shortness of breath on exercise and pain in the left chest which was sudden and severe. He had but one attack of this pain. The pain radiated up to the left shoulder and was so severe that he was given morphine. Shortly after that he noticed swelling of the abdomen, and then came swelling of the feet. Then he had a dull, aching pain in the right chest. Following that there was development of fluid in the right chest, and he was tapped in 1920 and has been tapped four times in the chest since that time. The abdomen was first tapped in 1922 and has since been tapped three times. We have evident signs of marked decompensation, with anasarca, swelling of the feet, dilatation of the veins of the neck, orthopnea, and dyspnea.

When we examine this man closely we immedi-

ately meet with some rather interesting though disconcerting facts. We find that he has a large heart, the apex lying in the sixth interspace, 16 cm. to the left, over twice as far out as it should lie. The heart is 20 cm. broad, or more, at the fourth interspace twice as large as it should be. In other words, we are dealing with an ox heart. The disconcerting feature about all this is that when we listen to the man's heart we find no murmur, no irregularities, rather sharp second sounds, but no sound anomalies indicative of a sufficiently severe cardiac disturbance to cause all of the symptomatology. The blood pressure is 110 systolic, a low instead of a high systolic pressure. The blood Wassermann reaction is negative; the leukocyte count is normal. There is no evidence of infection at the present time. Now comes the problem of reconstruction. The failure we can argue is myocardial; we have the large ox heart. But why has this man, if this dropsy was all due to myocarditis, been as comfortable as he has? A myocardium giving rise to all this anasarca would cause him to be very dyspneic and very uncomfortable. We shall possibly show another case that has no such amount of anasarca but who is very miserable; so it is impossible to say that myocardial failure is responsible for the whole thing. One of the first things to think of is, are we not dealing with a chronic adhesive pericarditis with associated phenomena? There are three clinical types of chronic adhesive pericarditis. In the first type the adhesive pericarditis is a chance finding at autopsy. The second class of cases in which adhesive pericarditis figures is the type in which there is a tethering fore and aft, with adhesions to the sternum on one side and with adhesions to the diaphragm, to the chest wall, and to the spine on the other. These are usually diagnosed easily. They have the Broadbent sign, the diastolic shock, the pulling in of the costal arch, and the tugging of the epigastrium. They are the type in which the trouble is due to the extra load of mobilization of the chest wall at every heart beat. This is the type in which the Brauer procedure is of advantage in untethering the heart and allowing the heart to mobilize, instead of bony structures, soft structures at each beat. Finally, there is the third type, the one associated with polyserositis. The pericardium is adherent, but does not give the classic signs,—the Broadbent sign, the diastolic shock, and so on. The infection attacks the other serous membranes, especially the peritoneum and pleuræ, produces the sugar-coated or iced liver,—the liver of



chronic perihepatitis. This is the condition that is usually diagnosed in this country as Pick's cirrhosis, although a misnomer.

In this case the first thing was pain in the chest, then swelling of the abdomen and feet, and tapping of the chest, which argues very strongly for this conception of the disease. Furthermore, rest and digitalis—of both of which he has large quantities—have not led to disappearance of the anasarca. Since the beginning of the trouble, some four years ago, the man has never been free from the swelling. (It would seem not unlikely that examination of the fluid might even now show evidences of inflammatory trouble.) In this case from a survey of the clinical facts, from the absence of evidence in the heart sufficient to cause the picture, from the sequence of events dating from the early age of nineteen and from the persistency of the trouble in spite of treatment, we are inclined to hazard a diagnosis of chronic adhesive polyserositis with adhesive pericarditis.

Q. What kind of treatment would you suggest?

DR. DUNN: I know of nothing except repeated tapings. It might be said in the early stages that prolonged rest with sodium cacodylate intravenously seems to be beneficial. I have carried several cases of acute polyserositis through with the administration of rest and of arsenic over long periods of time. These cases have usually cleared up and have remained well. I do not know what they would have done without treatment. We have seen the temperature repeatedly become normal after several days' administration of sodium cacodylate, and after its discontinuance we have seen a rise in temperature. In several instances the experiment has been repeated several times on the same patients so that the experiment was sufficiently well controlled to impress one with the probable value of the drug.

#### CASE IV:

*Diagnosis: Chronic Endocarditis (Mitral Insufficiency)* This man is forty-nine years of age and gives a history of having been sick for two weeks with "rheumatism" when he was twenty-two years old. A heart murmur was discovered twenty years ago, and on the basis of this murmur he was refused life insurance. In the interval between then and the time he was forty-nine years of age he had had no symptoms except some shortness of breath on violent exercise. He was seen by Dr. Willy on March 7,

1924, because he had noticed shortness of breath and failure of strength three weeks before. His chief complaint was shortness of breath on slight exertion and "winter cough." "Winter cough" is always suspicious. He could not go upstairs without difficulty; he has had no real pain, but a dull ache in the precordium.

(Examining patient.) In the examination of this patient there are several things of interest. First, we find a very bad mouth with a number of crowns and a large amount of restoration work and an unhealthy condition of the gums. Second, there is definite evidence of tonsillar infection, with liquid pus coming from the left tonsil, with slight enlargement of the submaxillary glands. There is no history of trouble in the sinuses, but they should be investigated. The blood pressure and the elasticity of the arteries are normal; the heart is moderately enlarged. Examination of the urine shows it to be normal.

I shall not go into the detailed examination of this man, but will state that he has a systolic murmur at the apex and that we have to hazard the diagnosis of mitral insufficiency. Pure mitral insufficiency is a bad diagnosis to make because if we expect to corroborate it at autopsy in the majority of cases we will be disappointed, because without evidence of stenosis at this orifice, systolic murmurs, which are endocardial in origin and which are attributed to the mitral area, are usually due to auriculoventricular ring insufficiency. However, in this case, we have cardiac enlargement without any other cause to explain it; we have an accentuation of the second sound; we have the history of this murmur existing twenty years ago, and we have the knowledge that the murmur has remained constant during a long rest period under Dr. Willy's care.

The diagnosis, however, of mitral insufficiency is, in my opinion, insufficient. We have said nothing about this man when we say he has a mitral insufficiency. We have said nothing about the patient, we simply mention the existence of a definite mechanical fact. We have said nothing about the work-capacity of this man's heart. It is just as important to say that I have a scar on my thumb. The question is, is the thumb all right? Can I use it like a normal thumb? If so I should "forget" the scar. The same logic applies to hearts: valvular lesions should serve to draw one's attention to the fact that something has happened or is happening. I believe Lewis says that to diagnose mitral insufficiency and be correct is to diagnose it in the presence of either aortic insufficiency or mitral stenosis, or both.

This man has carried this murmur most of his life. There have been no symptoms of any kind, and the mechanical load has been the same. What has happened? This man's heart failed last winter. What caused it? He has not undergone or suffered particular strain, or worry, or unhappiness. The most logical thing we can assume is infection, and we ask: has some infection so affected this heart that it can no longer carry a load which it has carried easily for nearly thirty years? This patient has not progressed on rest and digitalis as well as the doctor expected, so one is forced to first gamble on the most apparent infection,—his tonsil infection. Liquid pus expressible from the left tonsil was noted in our examination. We can treat him along with a certain amount of rest, but he does not like that. That will have to be done, however, if we do not strike at existing infections. We have had experience in a sufficient number of instances to justify us in advising a gamble on any demonstrable infections in the hope that therein lies the reason that the heart muscle is failing; we must never forget that many instances of disturbed heart action are due to causes outside the heart itself. Sinus trouble many times causes this disturbance. I have had this borne in on me in a way that I never shall forget. Shortly after I started the practice of medicine I caught a cold, which resulted in sinus disturbance. I was having chills and fever in the afternoon. This occurred after the disappearance of a post-mortem infection which had extended along the lymphatics of my arm as far as the axilla. One afternoon, the doctor who was treating my nose told me to go home and take ten grains of quinine and a drink of whiskey. I told him that whiskey and quinine did not agree with me, but he insisted that I should go home and take it. That night I had the classical symptoms of acute heart failure. The next morning "malignant" endocarditis was diagnosed, and I was sent to Chicago to go under the care of Dr. Herrick and Dr. Irons, because they were at that time developing vaccines for endocarditis. After several days observation they could not confirm the diagnosis of streptococcic endocarditis because the murmur had disappeared. Later a maxillary sinus showed up, and the heart trouble was stopped immediately by a sinus drainage.

## CASE V:

*Diagnosis: Suspected Myocardial Disturbance, Due To Tonsillar Infection:* This little chap is of interest. He is four years old. There is nothing in his history except an attack of

measles and after that a slight systolic murmur or rumble at the apex. The rumble is not entirely systolic and is suggestive of a presystolic murmur. The question is, what does this rumble mean? The child is well, and the murmur was found accidentally upon examination. The murmur does not belong there.

(Examining the patient.) Examination shows nothing but edematous, mushy tonsils, and diffuse enlargement of the submaxillary and anterior cervical chains of glands.

The law of probabilities demands the removal of tonsils, even at this early age, as a preventive measure in the light of the two cases to follow.

## . CASE VI:

*Diagnosis: Rheumatic Myocarditis:* This boy is of the same type as the last case. He was seen on December 23, 1923, with an attack of acute rheumatism, which was mild. This was preceded about one month by sore throat. For three or four months preceding the rheumatism the child had been pale, had fatigued easily, and did not look well. He had a blowing, systolic murmur at the apex, without a diastolic murmur, and slight fever. The leukocyte count was 12,100 on one occasion, and on another it was 10,400. The hemoglobin was 70 per cent. He was kept in the hospital under observation for a month, and the infected tonsils were removed about the 10th of January, 1923.

At present one cannot convince oneself that there is anything abnormal in the heart sounds. We ask ourselves the question, did he have endocarditis? One could argue that he did not. Dr. Willy thinks he did. It makes little difference whether he did or did not, for whatever he had has disappeared on removal of the tonsil infection. The murmur he had might just as well have been due to heart muscle disturbance. We must not forget that most of our cases of rheumatism have myocarditis, whether it is susceptible of clinical demonstration or not. At present the patient is well, and runs about and plays as a normal child. He does not know he has ever been sick. I think this is an example of the highest type of service to a patient. Had the infection not been removed such a condition might easily develop, as I shall show you in the next case.

## CASE VII:

*Diagnosis: Chronic Endocarditis (Aortic and Mitral Valves.)* This lad has not been by far so lucky as the two cases just seen, in which great possibilities of trouble were forestalled.



This lad eight years ago had pain in his legs and ankles which were supposed to be "growing pains." We always have to be suspicious of "growing pains;" they mean infection. He had had two attacks of tonsillitis and with these two attacks of tonsillitis had "growing pains." He was not well eight years ago, and in the light of what we see to-day the probability of endocarditis existing at that time is strong. The history tells us that he had fever every few days which lasted for several days each time. His heart trouble was discovered three years ago, after an attack of influenza. He now tires easily, is dyspneic on exertion,—even slight exertion,—and has palpitation. The hemoglobin is 85 per cent, the red cells 4,060,000, the white cells 4,800.

(Examining the patient.) The teeth are normal. There is definite infection in the tonsils; they are somewhat retracted, there is cheesy and hemorrhagic material in the crypts; the anterior pillars are injected. There is no great enlargement of the submaxillary glands.

We find a slight presystolic thrill at the apex, a presystolic blowing, and a presystolic rumble at the apex; a marked water-hammer pulse; a Durosiez sign, a violent beating in the precordial region even suggests adhesive pericarditis, although we cannot demonstrate its existence. The boy is on the brink of heart failure.

These three cases bring home to us the rôle of infection in producing organic cardiac disease in children. I think you will all agree with me that in the last five years we are seeing fewer of these hopelessly crippled hearts than we did twenty years ago. I can remember in my interne days that the wards were crowded with this type of case, but it is rather an exception to-day to see such a badly damaged heart. This case dates back eight or ten years; it is only within the last few years that our knowledge of the effect of infection on the heart and its diseases has become well broadcasted. The last three cases illustrate the fact that a good conception of heart disease is the best thing a doctor can bring his patient. I would prefer to have a man see me who has a good conception of heart disease than I would a man who is provided with all the modern appliances and instruments of precision. It is the conception of heart disease that was brought to the little lad whose mur-

mur has disappeared and to the little child first seen, that is of paramount importance to these children. As I said before, it is the conception of our circulatory organs and the view we take of cardiac cases that is important. I wish to take a moment of your time to emphasize the importance of circulation to the entire body. We must remember that every cell lives in a very definitely composed biochemical medium. That these cells, so far as their activity is concerned, are extremely sensitive to the biochemical influences of their environment. Carbon dioxide must not be allowed to go above a certain level and oxygen must not fall below a given level if they are to function normally. The sugars, the salts, the fats, must be there in suitable appropriate amounts to provide and control energy production; protein must be there for repair. The transportation system is the circulation and for correct, efficient, organ function, transportation must not fail. Disturbances of the circulation may have the most far-reaching effects on the individual and on society. I think we might well query whether the low price of wheat in South Dakota and some of our troubles in collecting fees might not be attributable to circulatory disturbance in the brain of Woodrow Wilson in 1919. Mr. Wilson was known to have had a high blood pressure. He was unable to cope with the diplomats at Paris in a manner that might well have been expected of him. He brought home a treaty of peace which was unsatisfactory. He suffered a cerebral hemorrhage some months later, and it is probable that from inadequate circulation his cerebral cells failed in the quality of their output.

Just a word in regard to treatment, as the hour is late. We all know the treatment of decompensation. We know too little about the prevention of cardiac damage by the removal of infection. Finally, we pay too little attention to the adjustment of the cardiac patient to his environment. We tell him to rest and to take things easily, but we do not teach him how to take things easily. It is a sad commentary that there is little available literature to put into the patient's hand that will teach him how to rest and how to take care of his cardiac deficiencies.

In closing I wish to thank Dr. Willy and his confreres for such an excellent display of well-worked up, well-treated cardiac cases.

## MUTATION

BY AN OLD COUNTRY DOCTOR

While the individual medical man may fall short in many ways and at various times of our conception of what should constitute a purveyor of medical science, still he and his colleagues, with their hopes and their fears, their talents and their weaknesses, are bound together into an immense strength which operates with tremendous force in the affairs of men. This great strength is the medical profession, and, while it is often scoffed at and sneered at, it is extremely doubtful whether this present civilization would be able to stand were its beneficent influence to be withdrawn. In those days of change and adjustments, although we are too near the scene of events to have any perspective, we cannot help but look around us to see if we can discern any changes or adaptations which may be taking place within the limitations of our horizon. The country doctor has faded away; at least this is what we are told—his environment changed and he had to depart.

He is bemoaned, not so much for his skill and learning as a physician as for the dramatic interest which surrounded his personality. While this forlorn figure is dissolving in the gloom, we will refrain from dragging his frailties into the light; but we will pay him one tribute and say that he was genuinely anxious to improve himself, and this was obvious from the number of country doctors who hung around the hospitals and clinics and crowded the postgraduate courses in the old days.

The gap left by the buggy-riding country doctor was filled by a common practitioner who rode in an automobile.

Now this common practitioner is forsaking the rural districts and small towns, because he is unable to make a living there—we do not know where he is going. Regions that were inaccessible rural districts some years ago are now traversed by gravelled highways along which roll the motor ambulance with nurse and white-coated physician in attendance. And the patient is removed to the hospital or clinic anywhere within fifty miles, the practitioner's responsibilities being thereby removed from before his eyes. Nor is this all there is to it. Wherever we go we find that the man who undertakes to live by the practice of medicine alone without other aid or assistance, in these days of the high cost of living, is having a struggle to keep the wolf from the door and is living on a plane much below

that on which the dignity of his calling should place him. The medical profession has no definite line of promotion along which a man may advance. In general practice there is no line of promotion of any kind, either definite or indefinite. The only reward that anyone may expect, is a little prestige among his colleagues. Prestige among the people is not to be depended on as they adore humbug more than they do merit. A man gifted with business acumen may be able to commercialize this popular applause while it lasts. But one who inherits this kind of acumen cannot be imbued with the true spirit of the profession.

When a young man passes through his medical course he acquires a certain momentum which carries him forwards and upwards for about ten years. After this, his flight is more on a level until he begins gradually to subside. During the first ten years he learns much of the sordidness of life and also much of the sordidness of medical practice. He is now mellowing into middle age. The novelty of practicing medicine has worn off, and the battle of life is on in earnest. He feels that he is poorly equipped and would like to improve himself, but he lacks the means to fulfill his desires. The years pass, and the talents he so proudly displayed in his earlier years, have atrophied from disuse. The experience of general practice is greatly overestimated for its academic value, and realizing this he feels that if he could ever get the chance he would make something of himself. His ambition fires him, and he dreams of becoming a surgeon or a specialist. His surgical operations have borne an inverse ratio to the years he has practiced, but still he dreams—he is trying to fly in a vacuum.

Time rolls on until we find him in the sere and yellow leaf. The ambitions of his youth have faded in importance. His reputation, which once shone so brightly, has grown dim and has disappeared with the passing years. He has neither property nor money to show for a life of toil and drudgery. He still practices medicine. But let us draw the veil. We trust that he awaits his fate with philosophy and composure.

Such is the story of thousands who have gone before, and such will be the story of thousands who are yet to come.

It is difficult to get a fundamental idea across with the medical profession as with other pro-



fessions. The idea that professional ability and financial success are wedded is a fallacy—they are divorced. So as not to be misunderstood let us say that these remarks are intended to apply only to the lower third of the profession, the submerged portions. In the upper walks professional ability and high financial reward usually go hand in hand.

We all honor our leaders and teachers and pay homage to those who, by superior ability, have risen above the rest. A man in general practice is liable to remain there unless fortuitous circumstance secures his release.

The health of a profession depends, not merely on the scientific principles on which it is based, but on the kind and quality of its individual members. The "mens sana" must have a "corpus sanum" to inhabit. It is useless to have a code of ethics which is above the birth and breeding of a large number of the members of any profession.

Economic necessity overrides every consideration. This is an axiom of sociology; so that when a large proportion of the personnel of any profession is ground between the millstones of thwarted ambition on one hand and penury on the other, such a profession is not going to live up to its highest traditions.

There is talent without stint in our profession, but most of it is squeezed out and lost by economic pressure.

It seems imperative that we should reduce our numbers to preserve our respectability; but with wave after wave of young doctors breaking on the shore or dashing themselves against the cliffs of disappointment, with men and women from the cults speaking in through every unguarded channel, and the rest clamoring for admittance, a reduction of our numbers seems too remote to be of any benefit to us in this generation. Our Class A schools are good but there should be no resting on our oars. We hope that the time is at hand when every young man who aspires to a license to practice medicine will have to pass through these schools or remain without.

We must learn to ignore the cults and to understand them. A cult in itself has no capacity for development. A cult in itself has not the initiative to originate any improvement from within itself. Improvement must be imposed from the outside. The cult itself bears no fruit. But when we insert a graft of our own tree into the cult, and insist on their studying medical subjects—then things begin to happen. The cult gives nourishment and support to this graft until it becomes a sturdy offshoot and bears fruit. This offshoot is what gives us so much

sorrow. After the graft has been inserted we notice that the cult consists of two parts—the cult proper whose followers adhere strictly to the tenets of the cult and the offshoot whose partisans aspire to practice medicine.

Men and women crowd into the cult schools with a dim idea that they will find a shortcut into the medical profession. A pure cultist is a harmless individual, without guile—he does not want to practice medicine or bother anybody. So it is never the real cult that we are fighting. The cult itself through all its vicissitudes remains unchanged and unchangeable. The cults should be carefully examined and studied by us, so that we can deal with them intelligently. Our present method of dealing with the cults is highly unsatisfactory. We impose a curriculum on them, and after they have done some shadow boxing with medical subjects, we give them a license to practice medicine. The real cult itself never asks for admission: it is content to be left alone. The cult is always ruthlessly discarded at the gate by the ungrateful people who have ridden on its back.

We are unable to convince the public that our motives are pure and unselfish when we ask for legislation to restrain the cults. We are unable to convince them that we are actuated by solicitude for their welfare instead of for our own. This public is a wise old bird and cannot be easily deceived.

The cult question is of serious import and should receive our most serious consideration. If we have to absorb the Osteopaths and later the Chiropractors, it will lower our caste and diminish our prestige with the public. It will bring distress and hardship into an already overcrowded profession.

The public are always generous with us when it comes to giving us advice. They advise us to turn out more doctors to supply the demand in the country oblivious to the fact that the doctors with their families have had to leave the country districts in order to obtain food. Many of them have actually been starved out. This, in connection with the harassing reciprocity conditions, is giving them a hard time of it. To add to their numbers will not ameliorate their condition.

Should we find a successful method for dealing with the cults the public will support us. The public may be wildly partisan to the cults to-day, but the public often changes its mind, and if we can defend our domain successfully against the Osteopath and the Chiropractor the public will applaud us for being able to take care of ourselves.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

AUGUST 1, 1924

## PHYSICAL HANDICAPS

The pathologist in the autopsy room must feel, at times, that he is dealing with a marvelous bit of machinery which has undergone the strain and stress of physical and mental disorder, but, in spite of which, from the history of the individual he has gone on living anywhere from fifteen to twenty years beyond his supposedly allotted time. Doubtless there are men and women walking the streets who carry with them more or less evidence of chronic physical disease; and yet the most of it remains either undiscovered or does not advance with the rapidity one would expect. For instance, one may cite the man who has had a cerebral hemorrhage or a cerebral embolism that produces very positive symptoms resulting in a paralysis of one or more of his extremities; he lies in bed, hovering between life and death for a few weeks, gradually reaches a period in which there is not much change, and ultimately begins again, under suitable instruction, the restoration of his former but forgotten muscular movements; and in time he gets up, gradually, usually, and regains to a very definite degree his power of locomotion and the action of his upper extremities. During this period of partial convalescence, he has adapted himself to his handicap, and not infrequently he becomes more cheerful, more optimistic, and resigned to his incapacity. He may live many years thereafter, in spite of the old superstition, existing

for years, that he will die at the end of the third apoplectic seizure. This statement, of course, has been utterly discarded, although some cases, coincidentally, perhaps, show such a history. Cerebral hemorrhages sometimes are found in which eleven attacks have been noted and eventually confirmed by autopsy.

For instance, from another point of view a man presents himself with a fairly good family history; his brother lives to be eighty years old, although five of the family died in childhood from the usual and frequent toxi-infectious diseases. This man's personal history shows that he is a man of fairly good habits. He has used alcohol and tobacco in very moderate quantities. He had "muscular rheumatism"—whatever that may mean—several years ago, and the usual diseases of childhood. He gives a history of Bell's facial paralysis on the left side in 1908, and a cerebral hemorrhage late in December, 1915, in which he had an aphasia and paralysis of the right arm and hand. From this he never fully recovered. He was always more or less uncertain and unstable in his speech, although the paralysis of his right hand and arm seemed to have disappeared. He is a man of fairly active habits, an out-of-door man, on his feet a good deal, and does the average man's work. He comes under observation again in June, 1924, sixteen years later, and complains of pain in the left side of his chest and general malaise, but he is not confined to the house. He has some dyspnea on exertion, but no cough. A physical examination shows that, although he is well developed and fairly well nourished, the chest shows markedly impaired resonance of the left middle and lower chest, posteriorly. There is a marked bronchial breathing with increased voice transmission, a few moist râles, and the heart very moderately enlarged, slightly irregular; his arteries are markedly thickened and hard. The rest of his examination is practically negative, save for slight impairment in the function of his right hand from his insult sixteen years before. He has a normal temperature, and yet he has a pneumonia. He has a negative urinalysis, confirmed by other examination. He lives for a matter of three weeks, and dies stuporous and unconscious—wears out. The autopsy shows that he had a bronchial pneumonia with pulmonary infarcts; pleural adhesions; pleural effusion; marginal emphysema; atelectasis; generalized arteriosclerosis; cardiac hypertrophy; arteriosclerotic kidneys; chronic passive congestion of liver and lungs; chronic cholecystitis,—eleven distinct pathological find-



ings, and yet this man has pursued a fairly even course of life and has been up and about until two weeks before his death. He was tremendously handicapped, and yet many of his handicaps were not demonstrable. Fortunately, he lived an even life, without excitements or excesses of any kind or anything especially disturbing.

As another illustration: the man who has a hardening or destructive lesion in his spinal cord. He may be a tabetic, yet he gets about, transacts his business, and lives on for many years, and finally dies of some intercurrent trouble, or he may have a lesion in his anterior gray horns and suffer a group paralysis; yet he goes on, with his cane or crutch, through life, performing his duties in an almost normal manner. Numerous other instances might be cited as handicaps, many of them unrecognizable; and yet we wonder at the flippancy with which many of these diseases are considered. Perhaps it is just as well that we do not know what we suffer; perhaps that is why, under certain conditions, people begin to complain, and, rather than go to a doctor, they go to a non-medical healer; and not infrequently they die, because their normal course of life has been interfered with. Perhaps the treatment is not suitable for such conditions as they suffer from, yet the healer will retaliate by saying that the doctors did not know these things existed (neither does he), and that, if he had been observed and the case diagnosed earlier in life, he might have been saved—all of which is bosh. It is the man, his construction, his pathological tendencies, and his heredity, that stands him in good stead and overcomes the pernicious effects of his handicaps.

## HYPERTENSION AND HYPOTENSION

### HYPERTENSION

Hypertension, or increased blood pressure, as the lay people look at it, is a frequent source of anxiety, not only to the lay people, but to physicians; and yet there are numerous cases where exceedingly high blood pressure has been noted with but few symptoms that followed. There are cases not uncommonly seen that register up to the maximum of the blood-pressure indicator, 300, and probably could be found much higher if the indicator registered above this figure. Then, too, there are many physicians who believe that 140 or 150 for the average person between the ages of forty and fifty is high blood pressure, and not infrequently the physician incautiously refers to it, and perhaps tells his pa-

tient that he has a high blood pressure when a little careful analysis of the situation would show that he has a nervous patient who under certain nervous conditions would show a pressure which is supposed to be over the normal. Patients are so accustomed to having their blood pressure taken now that they will sit quietly and enjoy the experience, and then look up into the physician's face, expectantly, for him to tell them whether their blood pressure is high or low. And if he is a man of much discernment and the patient is nervous or apprehensive it will be much safer for him to say that the patient has a nervous blood pressure and give the patient the minimum rather than the maximum findings of the indicator. However, hypertension is an important thing under certain conditions. The chief of these is cardiovascular-renal, or even a cardio-renal; and when there are positive findings of heart and kidney inadequacy high blood pressure is an outstanding factor in prognosis, because it may, in turn, cause many symptoms, that is, the high blood pressure. It may be responsible for a cerebral hemorrhage, particularly when a hereditary predisposition is in evidence. There are many antecedents which should be considered: chronic alcoholism, lead poisoning, syphilis, and gout; and other factors, too, must be considered, such as traumatism, and diseases of the blood, such as hemophilia, leukemia, and pernicious anemia. It can be easily seen that any organic disease of the heart commonly found in the valves which obstruct the blood stream must lead to an overdistension of the pumping station. It is also comparatively easy to understand why a chronic kidney with its various microscopic findings and chemical findings would suggest a lesion of the heart and quite naturally a disorder of the arteries. It has also been noted that a persistent hypertension with a relatively high diastolic level usually means a chronic nephritis, in spite of the fact that the urinary findings may be absent. Naturally one would be more or less observant of the possibility of a uremia; and when the cerebral blood vessels are affected a fleeting aphasia, vertigo, and syncope or a transient hemiplegia are the symptoms that are sufficiently in evidence. One must be quite sure of one's ground when taking hypertension as a serious indication of a serious subjective symptom. The sphygmomanometer must be in good order, and occasionally tried out by someone who is expert in the mechanism of the instrument. Then one must seriously consider, as has been said before, the nervous attitude and history of

the individual, as there are many who are apprehensive, who are fearful of the physician's findings, and who under the excitement of examination develop a high blood pressure. After confidence has been once restored the blood pressure may drop within twenty or thirty minutes to a perfectly normal level. Yet people go on living with all the preliminary symptoms; or perhaps the symptoms have been long undiscovered except that the hypertension remained. Only by careful inquiry, by careful investigation of the heart, the kidneys, and the history of a possible infection associated with a sclerosis of the blood vessels can one be sure of his ground in debating, even with himself, the seriousness of hypertension.

#### HYPERTENSION

One may be equally vague in an estimate of hypotension as with the findings of hypertension. The insurance companies all over the country are keeping in close touch with blood pressures and are still rejecting many applicants because they have a supposedly high blood pressure; and they probably, with equal readiness, reject the man who presents an abnormally low blood pressure. *Hypertension* usually means a disease, while *hypotension* may be said to be a symptom. In a recent article on clinical types of hypotension, by Dr. Alfred Friedlander, of Cincinnati, published in the *Journal of the A. M. A.*, July 19, 1924, he gives some very interesting observations in low blood pressure. It is undoubtedly true that a great many people of vigor, of muscular activity, have low blood pressure; and it seems as if hypotension would be incompatible with good health. It may be a slander to remark that a good many vigorous people who are more or less indifferent about the care of themselves, who perhaps are more or less indiscriminate in their living, resort to drugs, such as are commonly used in headache, and, of course, all our readers know the drug referred to. This class of people are very apt to have low blood pressure, probably by the knock-down effects of their toxic drugs, which paralyze their nervous system and temporarily relieve their headaches.

The upper limit of systolic pressure in hypotension is about 110 in adults. In a series of experiments carried on by Alvarez, in a study of blood pressures of 15,000 university freshmen, it was shown that the pressure of young women was more uniform than the pressure of men, but somewhat lower. And 50 per cent of the women's readings fell below 105 and 110.

This investigator further showed that the aver-

age pressure actually drops from the age of 17 to 21 in men and from 17 to 25 in women. Cadbury, in the *Archives of Internal Medicine*, September, 1922, in his investigation of blood pressures of normal Cantonese students, those who lived as the average student lives, under good hygienic conditions and are more or less athletic and with a good quality of food and who are considered normal in every way, at the age of twenty found 60 per cent of the readings of the systolic pressure between 91 and 110. This is less than normal for people in Europe and North America, but is a matter of common observation in the Bengali and the Philipinos. Smaller stature and lighter weight perhaps might account for some of this.

Dr. J. W. Fisher, of the Northwestern Life Insurance Company, in a pamphlet referred to the record of 3,389 persons between 16 and 60 accepted for insurance by the Company who had a systolic pressure of 100 or less. In this series there had been, up to the time of publication, 26 deaths, or 35 per cent of the expected mortality.

Dr. Wm. Muhlberg, medical director of the Union Central Life Insurance Company, calls attention to the possibility that low blood pressure at the younger ages may be an early symptom of tuberculosis; and he makes the statement that "there appears to be no doubt of the fact that a low blood pressure past the age of fifty, and associated with any organic lesion, is the best criterion we possess that the individual will live beyond his normal expectancy; but just how low that blood pressure can fall without becoming actually pathologic depends upon further clinical and statistical studies for the solution."

It seems to be generally accepted that low blood pressure is consistent with good health. This is dependent, however, upon two or three general factors:

The force and frequency of the heart beat; secondly, blood pressure may be lowered because of diminution of peripheral resistance; and the third factor is the output of blood with each systole. Low blood pressure also may be either a temporary or a persistent phenomenon, and in some instances it may be anaphylactic, anesthetic, or traumatic in origin. It occurs in certain acute infectious diseases, drug intoxications, certain chronic diseases, chronic infections, or cachectic states. It is also found in certain constitutional conditions, such as infantilism, myasthenia gravis, and status lymphaticus, and in disturbances of the endocrine glands, especially the suprarenals, the pituitary, and the thyroid.



The entire article of Dr. Friedlander's should be read, in order to form an adequate explanation of hypotension. The author makes one statement which it is a relief to know,—that actual myocardial weakness is not of so much importance in the production of hypotension as are disturbances of vasomotor tone and disturbances of blood volume. He, further, refers to the researches of Dale, Laidlaw, and Richards, who claim that "low blood pressure is not due to relaxation of the arterioles, but is due, apparently, to the dilatation of the capillaries, pooling of the blood within them, poisoning of the endothelial walls so that they become abnormally permeable." Reduction in blood pressure can be induced by the injection of minute amounts of histamin, a substance which typifies the action of a large class of poisonous protein derivatives,—products of partial digestion, of bacterial action, and of tissue extraction.

#### MEDICAL OFFICERS' TRAINING CAMP

On July 6-20 there gathered at Ft. Snelling (between Minneapolis and St. Paul) a group of medical men, including a few dentists and veterinarians, designated as the Medical Officers Reserve Training Camp of the Sixth and Seventh Corps Areas, composed of ten or twelve states of the Middle West.

The training was under the direct command of Col. J. B. Clayton, M. C. regular army, and instruction was given by regular army officers detailed for that purpose. It started with a morning period of one and a half hours of military drill, followed by lectures by these officers on the present organization of the Medical Department of the Army, which has been thoroughly reorganized since the World War. There were also field demonstrations of tent pitching, sanitary appliances, mode of collecting and removing the wounded during the battle, map reading, pistol practice and equitation were also indulged in.

These reserve officers were organized into a provisional regiment, of which Dr. E. P. Quain, of Bismarck, N. D., was the colonel. The names of men from Minnesota, and the two Dakotas, who took the training will be found in our news columns.

We believe this is the second season in which this training camp instruction has been given, although the work last year was not to be compared with that done this year, and next year's work will greatly exceed that done last month.

The chief aim of this instruction is to so train a large group of medical officers in case their services are needed in time of war there will be

sufficient officers so thoroughly trained as to avoid the confusion and inefficiency caused by the calling to the service large groups of untrained men ignorant of their duties.

The men, probably without an exception, who gathered at Ft. Snelling were enthusiastic about the work done and about the friendships formed in the two weeks of strenuous, but delightful work.

## CORRESPONDENCE

### FIRST WOMEN INTERNES AT THE MINNEAPOLIS GENERAL HOSPITAL

TO THE EDITOR:

In a recent issue of THE JOURNAL-LANCET I note that you state this is the first year that women have been employed as internes at Minneapolis General Hospital. Inasmuch as you represent correct medical information, I am writing to ask you to correct this statement. I was the first woman interne employed at the Minneapolis General Hospital, serving 1916 to 1917. The following year, when I served as the first woman Assistant City Physician, four women internes were employed,—Dr. Clarissa Clay, Dr. Frieda Radusch, Dr. Tynne Kettunen, and Dr. Irene Blanchard. I believe it is only fair to the Hospital to state that this is not a present-day innovation, but was started under Dr. Collins.

Sincerely,

L. E. BOUTELLE, M.D.,

South Dakota State Health Department, Wau-  
bay, S. D.

## MISCELLANY

### RESOLUTIONS ON VACCINATION

The Olmsted County (Minnesota) Medical Society at its meeting last month adopted the following resolutions:

WHEREAS, vaccination against smallpox and typhoid fever has been attacked by various pseudo-scientific societies and in some instances by the public press as being ineffective in the prevention of these diseases and dangerous to the health of those vaccinated, and

WHEREAS, the experience of the medical department of the United States Army has proved conclusively that, in the case of typhoid fever, vaccination is a safe and dependable measure, responsible for the saving of many thousands of lives during the World War, as is shown by a comparison of the

typhoid rate during the Civil War before anti-typhoid vaccination was known, and the rate during the World War, indicating that, had the former rate prevailed, over sixty thousand Americans would have died of the disease, instead of the actual number which was barely two hundred, and

WHEREAS, general neglect of vaccination against smallpox is leading to a greatly increased prevalence, and in some places to its appearance in epidemic and in virulent form, and

WHEREAS, there is positive proof as shown by the records of state and municipal health departments that vaccination with re-vaccination will prevent smallpox, and

WHEREAS, vaccination properly performed and cared for carries no appreciable risk to the health of those vaccinated, as proved by the extensive experience of army surgeons who have treated hundreds of thousands of persons without a death, therefore,

BE IT RESOLVED that the members of the Olmsted County Medical Society hereby publicly endorse vaccination as a most effective means for the protection of individual and community health and further that they go on record to the effect that vaccination is a harmless procedure and conducive to public welfare.

## NEWS ITEMS

Dr. L. H. Bussen has moved from Swanville to Freeport to take over the practice of the late Dr. Dumont.

Dr. J. B. Vail has moved from New York Mills to Henning. Dr. Vail is a graduate of the University of Minnesota, class of '22.

Dr. F. H. K. Schaaf, of Minneapolis, has left for a two months trip to Germany. He will do special work in Berlin and Koenigsberg.

Dr. Andrew Sivertsen, of the Sivertsen Clinic of Minneapolis, has been appointed by Governor Preus a member of the Boxing Commission of Minnesota.

The Commissioners of St. Louis County will co-operate with the U. S. Public Health Bureau to stamp out trachoma which is prevalent in St. Louis County.

A traveling mental hygiene clinic for the State of Minnesota is to be organized by the Child Guidance Demonstration Clinic of the University of Minnesota.

Dr. Warren E. Wilson, a 1922 graduate of the University of Minnesota, has joined the firm of Drs. Wilson & Moses, of Northfield, of which firm his father is a member.

Dr. Donald S. Branham, a recent graduate of the University of Minnesota, was married last month to Miss Rachel J. Secor, of Minneapolis, and has located at Albert Lea.

Dr. J. J. McKinnon, acting superintendent of the Fair Oaks Lodge Tuberculosis Sanatorium, at Wadena, has cut the budget for next year by more than \$5,000 below any previous budget.

Dr. Frederick R. Green, editor of *Health*, Chicago, is the editor of a series of syndicate papers on health now beginning to run in many country papers of America. They will be good.

We noted in a recent issue the death of Dr. Alfred Lind, formerly of Minneapolis, which occurred in Cuba. Funeral services were conducted for Dr. Lind in Minneapolis last month.

Dr. J. M. Hofto, of Grand Forks, N. D., has begun practice at Larimore, N. D. Dr. Hofto is a graduate of Rush, and has just completed his internship at the Ancker Hospital, St. Paul.

Dr. A. O. Fonkalsrud has moved from Minot, N. D., to Sioux Falls, S. D., to take up the work of the Bethany Hospital Association of the Lutheran Church. Dr. Fonkalsrud has had wide experience in hospital work.

The August meeting of the Lymanhurst and Parkview staffs scheduled for August 26, as noted in our last issue, has been given up; no meeting will be held in August. The regular meetings will begin on Sept. 25.

Dr. Smiley Blanton, of the University of Wisconsin, has been appointed head of the Department of the Child Guidance Clinic of the University of Minnesota, to succeed Dr. Lawson G. Lowrey, who goes to Cleveland, Ohio.

The Montana Association of Eye and Ear Surgeons held its annual meeting in Helena last month, when the following officers were re-elected: President, Dr. G. O. Dayton, Butte; secretary-treasurer, Dr. L. G. Dunlap, Anaconda.

Dr. J. M. Dodd, of Ashland, Wis., has retired from the secretaryship of the Wisconsin State Board of Medical Examiners, after having served on the Board for eleven years, nine years as secretary. The office of the Board will be moved to La Crosse.

The fourth annual tour of the health clinic working under the auspices of the North Dakota Anti-tuberculous Association, began work last month. It will visit the counties of the western part of the state, giving clinics and medical service where urgently needed.



Dr. Charles W. Thompson, of Helena, Montana, died last month at the age of 70. Dr. Thompson was a graduate of Hahnemann Medical College of Philadelphia, class of '80, and was a pioneer physician of Montana, where he had practiced over a third of a century.

Miss Louise M. Powell has resigned as director of the School of Nursing, University of Minnesota, to accept a similar position at the Western Reserve University. Her successor at the University of Minnesota is Miss Marian L. Vannier, of the Elliot Memorial Hospital, of the University.

The Great Northern Railway entertained its surgeons in handsome style last month, giving them an extended trip to the coast, where they met for their annual meeting on June 23 and 24, and then went to Vancouver, B. C., to attend a meeting of the Northwest Pacific Medical Society.

The Medical School of the University of Minnesota received 186 applications for admission to the freshman class to begin work in September. As the number of admissions is limited to 100 in a year, all but 105 were denied admission, five extra being taken to fill possible vacancies.

Prof. John Hunter and Dr. N. D. Royle, of Sidney, Australia, will visit the Mayo Clinic in October and will exhibit the technic of their operation for spastic paralysis. They will come to this country upon invitation of Drs. W. J. Mayo and Franklin H. Martin, who recently visited Australia.

At the meeting of the Central Minnesota Medical Society held at Pokegama last month, papers were presented by Dr. Franklin R. Wright, of Minneapolis; Drs. L. E. Daugherty and E. K. Greer, of St. Paul; Dr. Arthur N. Collins, of Duluth; Dr. Charles Swenson, of Braham; and Dr. F. E. Callahan, of Pokegama.

Dr. Mabel Ulrich, of Minneapolis, known to our readers as a very efficient worker in many lines of moral and health work, in and outside of Minneapolis, has turned her attention to rare books, prints, pottery, etc. She has just returned from Europe with trunks full, not of fashionable gowns, but of rare, esthetic, and readable things.

The Wabasha County Medical Society held its fifty-sixth annual meeting at Lake City last month. The following officers were elected for the current year: President, Dr. H. E. Bowers, Lake City; vice-president, Dr. D. R. S. Gutsell,

Zumbro Falls; secretary-treasurer, Dr. W. F. Wilson, Lake City; delegate, Dr. E. H. Bayley, Lake City.

Duluth will make a strenuous effort to have the new United States Veterans' Hospital (for the Tenth District), to cost a million and a half, located in St. Louis County. The committee in charge of the matter says "Duluth has the ideal climate and weather conditions for the treatment of tuberculosis." Let Arizona and California physicians and newspapers take notice.

The tuberculosis sanatorium building, erected at a cost of \$40,000 by the American Legion Auxiliary for South Dakota ex-service men at Senator, near Custer, S. D., is being dedicated to-day (August 1). The building contains twenty-four bed-rooms, with two beds in a room and a sleeping-porch for each room. The sanatorium is named the Moodie Memorial in recognition of the services of Mrs. Mable Moodie, of Elk Point, S. D., who had charge of raising the funds and erecting the building.

The Northern Minnesota Medical Association holds its mid-summer meeting at Duluth next week (August 4 and 5). An interesting program has been prepared, and the entertainment side of the meeting will be pleasing. The following names appear on the program, each man speaking on a subject of practically every-day interest: Dr. C. N. Callander, Dr. Theo. Bratrud, Dr. F. W. Schlutz, Dr. Verne S. Cabot, Dr. F. W. Briggs, Dr. M. A. Shillington, Dr. M. S. Henderson, Dr. G. S. Wattam, Dr. Cowing, Dr. Max Seham, Dr. F. E. B. Foley, Dr. G. B. New, Dr. H. Gideon Wells, Dr. E. M. Hammes, and Dr. W. A. Fansler.

The Montana State Medical Association held its forty-sixth annual meeting at Helena last month. The president of the Association, Dr. R. C. Monahan, of Butte, in his presidential address, made a vigorous protest against the evils of legislation dealing with medical men and medical matters; and he expressed his disgust that such things are possible. The officers elected for the current year are the following: President, Dr. George McGrath, Hamilton; first vice-president, Dr. John L. Treacy, Helena; secretary-treasurer, Dr. E. G. Balsam, Billings; delegate to the A. M. A., Dr. C. T. Pigot, Roundup; alternate, Dr. H. T. Rhoads, Choteau. The 1925 meeting will be held at Lewistown.

The following medical men in Minnesota and the Dakotas were members of the Provisional Medical Regiment who were in camp at Ft.

Snelling, Minnesota Training Camp from July 6 to 20. Minnesota: Avery, Jacob F., Lt. Colonel, Minneapolis; Johnson, George L., Captain, Newfolden. North Dakota: Longstreth, Wallace I., Major, Sisseton; MacKenzie, John R., Captain, Carrington; Quain, Eric P., Colonel, Bismarck; Rice, Paul F., Major, Solen. South Dakota: Brackett, John W., Captain, Sturgis; Braddock, William H., Captain, Yankton; Cook, John F. D., Captain, Langford; Culver, Charles F., Major, Sioux Falls; Field, Everett H., Captain, New Effington; Hohf, Sialas M., Captain, Yankton; McWhorter, Port, Captain, Miller; Plant, Joseph H., Captain, Hot Springs; Whitehead, Ellis H., Major, Brookings.

The Illinois State Medical Society has undertaken a gigantic and splendid task, namely, to compile a medical history of the state extending back 250 years, and the Committee makes a strong appeal to former Illinois doctors or descendants of pioneer physicians of the "Illinois country" for material. The scope of the volume will range from the discovery of Illinois to modern times. Through this period of over 250 years there is much of thrilling interest to be detailed. Collection of the human interest data can come only from the families or closest friends of the pioneers, many of whom long ago moved to distant sections of the United States. Through the medical men and journals, it is hoped to reach those who may be able to loan valuable material to the compilers, who guarantee careful guardianship of anything sent for publication. For detailed information, address Charles J. Whalen, M.D., 25 E. Washington St., Chicago.

In a statement issued by Health Commissioner Harrington, of Minneapolis, on July 8, he gave warning of the steps to take in dealing with certain infectious diseases, as follows: "Blow No. 1. Let every physician keep in mind that smallpox is present in the city and increasing, and then regard with suspicion patients who claim to have grippe, flu, 'sprained backs,' and the like. There is no flu or grippe in the city at the present time. The possibility of smallpox should be eliminated whenever found. This Division will attempt to obtain publicity to urge vaccination by practicing physicians. Check chickenpox cases for vaccination scars. Blow No. 2. Let every physician remember that Minneapolis has fewer cases of scarlet fever today than for several years and that the greatest danger of spread is from unrecognized cases. Every sore throat patient who has a rash and every patient who has a rash and a history of

sore throat should be regarded as a possible scarlet fever case. The sepsis factor of so-called septic rashes is usually scarlet fever. Beware of the rash on a child which is said to be due to 'something he ate.' "

#### SUMMER MEETING OF THE SIOUX VALLEY MEDICAL ASSOCIATION

The summer meeting of the Sioux Valley Medical Association was held on July 8 and 9 at the McKennan Hospital, Sioux Falls, S. D., and proved to be the best summer meeting in the history of the Association, also demonstrating that medical society meetings can be made enjoyable and profitable, and be well attended.

The program shows the kind of work done and by whom. This plan of program, instead of one composed of conventional papers by members of the Association, was introduced by the former secretary, Dr. R. M. Waters, of Sioux City, Iowa, and it will be followed by the new secretary, Dr. R. F. Bellaire, also of Sioux City.

The entertainment by the Sioux Falls men was highly appreciated by all the members and visitors. The following was the program:

TUESDAY, JULY 8, 1924

MORNING MEETING, 8:30 A. M.

1. Business Session.
2. President's Address, L. L. Corcoran, M.D., Rock Rapids, Iowa.
3. Address—The Ideal Clinicopathological Conference—Dr. H. E. Robertson, Mayo Clinic, Rochester, Minn.

AFTERNOON MEETING, 1:00 P. M.

1. Election of Officers.
3. Clinical Demonstration: Medical Cases—Dr. Walter L. Bierring, Des Moines, Ia.
4. Clinical Demonstration, Surgical Cases—Dr. Arthur T. Mann, Minneapolis, Minn.

WEDNESDAY, JULY 9, 1924

MORNING MEETING, 9:00 A. M.

Clinical demonstration (10 minutes each, with 5-minute question periods) by the following:

Dr. Arthur Margot, Sioux Falls, S. D.—

1. Report of case of disseminated gummatous sporotrichosis with lung metastasis.
2. Study of a case of severe anemia due to dibothryocephalus latus, including necropsy report.

Dr. R. S. Westaby, Madison, S. D.—

1. Surgical treatment of fractured neck of femur. (Open method.)
2. End-results in corn huskers' injuries.

Dr. A. S. Rider, Flandreau, S. D.—

Probable thyroid and suprarenal deficiency.



Dr. E. E. Gage and Dr. D. A. Gregory, Sioux Falls, S. D.—

Demonstration of a case of Malta-fever of the bovine type.

Dr. Wm. E. Donahoe, Sioux Falls, S. D.—

Short discourse on the use and value of diphtheria toxin antitoxin.

Dr. G. G. Cottam, Sioux Falls, S. D.—

Demonstration of several cases of sever brain injury.

Dr. M. A. Stern, Sioux Falls, S. D.—

The use of radium in the treatment of cancer of the cervix uteri, with demonstration of cases.

Luncheon—at the Hospital.

AFTERNOON MEETING, 1:00 P. M.

Dr. LeRoy Crummer, Omaha, Nebr.—

Clinical Demonstration Chest Cases.

Dr. B. H. Moore, Chicago, Ill.—

Clinical Demonstration Orthopedic Cases.

Officers elected: President, Dr. C. E. McCauley, Aberdeen, S. D.; first vice-president, Dr. C. L. Sherman, Luverne, Minn; second vice-president, Dr. J. M. Rowley, Rock Rapids, Iowa; secretary, Dr. R. F. Bellaire, Sioux City, Iowa; treasurer, Dr. W. R. Brock, Sheldon, Iowa; member of the Board of Censors, Dr. R. M. Waters, Sioux City, Iowa.

#### Physicians Wanted In Iowa

Physicians wanted for three or four Iowa locations. Little or no money required. For full data address Box 542, Cedar Rapids, Iowa.

#### Physician Wanted

Have an excellent location for physician who wants to make money right from the start. Nothing to buy. Address 111, care of this office.

#### For Sale

A surgeon's ophthalmic chair (Allison) and a dentist's cuspidor are offered for sale at a low price. Address or call upon T. V. Moreau, 40 South 7th St., Minneapolis.

#### An X-Ray Technician Wants Work

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### Experienced Laboratory Technician Wants Position

In a hospital for a private laboratory. Very high grade work guaranteed, with best of references. Several years experience. Address 109, care of this office.

#### Practice For Sale

One of the best practices in South Eastern North Dakota in a city of 1,800. Good high school, good railroad center and one of the best mixed farming districts, with no crop failures. Am going to the city to specialize. Practice for sale with or without residence. Good opening for German-speaking doctor. Address 124, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Practice For Sale In Minnesota

Established Minnesota practice for sale at invoice; excellent gravel roads; sound dairying and farming community; large consolidated schools with gymnasium; collections good; modern offices with dentist. Specializing. Give qualifications. Address 119, care of this office.

#### Office For Rent In Minneapolis

Office of three rooms with private waiting-room. Sixth floor Yeates Building, Nicollet and Ninth, Minneapolis. Tel. Main 7322.

#### X-Ray and Laboratory Work Wanted

Position in doctor's office, clinic, or hospital by a woman thoroughly efficient in x-ray and laboratory work. Five years experience in doctor's office as x-ray technician, bookkeeper, and stenographer. Have completed a six months laboratory course. Address 120, care of this office.

#### Physician's Office Equipment for Sale in Twin Cities

Consists of white enameled office unit of several pieces, also reception room furniture, sterilizers, bookcase, drugs, and other articles. Almost as good as new. Price very low for quick sale. Rare opportunity for beginner to get equipment at small cost. Address 123, care of this office.

#### Salaried Position Open

A Minnesota institution desires a man of good reputation. Work will be very light and will be confined to the institution. Will pay a salary of \$200 and room and board for himself and wife, if married. The board and accommodations are those of first-class hotel. Address 106, care of this office.

#### Physician Wanted

To take my established Minnesota practice for invoice price of modern equipment. Fine town of 2,000, two railroads, paved streets, graveled roads, splendid community. Free office rooms in connection with drug store. Only one other active physician. Large territory. Unusual opening for one who is not afraid of work. I am going to specialize. Address 116, care of this office.

#### Physician's Office Furniture, Etc., For Sale

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 16

MINNEAPOLIS, AUGUST 15, 1924

Per Copy, 10c  
A Year, \$2.00

## SURGERY IN CASES OF TUBERCULOUS ARTHRITIS\*

By MELVIN S. HENDERSON, M.D.

Section on Orthopedics, Mayo Clinic

ROCHESTER, MINNESOTA

In recent years the prevention of tuberculosis and the general outline of treatment, particularly of the pulmonary type, have been brought prominently before the public. There can be no doubt that such publicity has done much to overcome the firmly entrenched opinion that treatment was almost futile, and the prognosis hopeless. The physician now has the hearty and optimistic co-operation of the patient and his family and friends.

Tuberculosis of the joints is by no means a negligible factor in the problem as a whole. Affecting, as it so often does, the person's locomotive apparatus, it readily puts him hors de combat. Tuberculosis of the bones and joints is always secondary to a lesion elsewhere. It is commonly accepted that the primary lesion is a caseating gland, usually in the deep cervical, bronchial, or mesenteric groups. In some instances the bacilli may be taken into the chyle direct from the intestines and carried by the thoracic duct into the circulation. The work done by Miller and Mitchell, in collaboration with of Sir Harold Stiles, proved that the milk-borne bacilli of tuberculosis of the bovine type were responsible for much of the surgical tuberculosis of the patients at the Royal Edinburgh Hospital for Sick Children. They proved the error of Koch's assertion that bovine tuberculosis never causes tuberculosis in the human. Fraser, also of Edinburgh, found that it was difficult to pro-

duce tuberculosis of the bone experimentally. The soil must be adapted to the peculiarities of the bacilli before they will take hold and grow. Fraser contended that a form of gelatinous degeneration must occur, and that it might be brought about by the toxemia of the bacilli themselves, or, as pointed out by Stiles, comparatively slight trauma in a child might slightly loosen an epiphysis, and a hemorrhage in the metaphyseal area ensue, thus furnishing fertile soil for the bacilli. Local resistance may finally seal in the tuberculous embolus deposited in such an area, and hold it securely locked, only to fail in later years when the individual's general resistance may be low, or trauma may cause a lowering of the local resistance. Brown, some years ago, demonstrated that dust and dirt from hovels, previously occupied by tuberculous patients, failed to produce the disease when injected as an emulsion into a guinea-pig. The danger of infection in such a manner may be overestimated, but too often a clear-cut history of previous association with tuberculous patients demonstrates beyond doubt the danger of contact and intimate association, when proper precautions are not taken. Fraser found, at the Royal Hospital for Sick Children, that 62 per cent of the cases of surgical tuberculosis were due to the bovine type of bacillus. Of the remaining 38 per cent, supposedly the human type, there was a history in 71 per cent of open tuberculosis in some member of the family with whom the patients had been in contact. Fraser found that tuberculosis of the

\*Presented before the Staff of the Lymanhurst Hospital, Minneapolis, April 22, 1924.



synovia was as easy to produce as tuberculosis of the bone was difficult. He also found that trauma was an inducing factor, as had been demonstrated in Schüller's work in 1880. Da Costa said, "To deny the possibility of traumatic tuberculosis is to deny many of the truths of pathology, and some of the plainest lessons of clinical medicine." The frequency with which a history of trauma is encountered in patients with tuberculosis of the joint leaves no room for doubt as to its importance in the etiology. It has been my impression that we do not see the same percentage of tuberculous joints in our orthopedic clinic that we did ten years ago. I find that in 1914 we saw 227 tuberculous joints, or 0.74 per cent of the total registration of the Clinic for the year, whereas in 1923 we saw 276 tuberculous joints, or 0.49 per cent of the total registration for the year. Certain factors may influence these figures, one way or another, but they seem to bear out the impression that the patients with tuberculous joints are proportionately not so numerous as they were ten years ago.

Our diagnoses have been based on clinical data, and wherever an operative procedure has been undertaken pathologic examinations and guinea-pig tests have been made. When we turn to our textbooks for information concerning the relative frequency with which the different joints are affected, we find that the most reliable data emanate from children's hospitals. These data might well be different from those emanating from a general clinic.

#### PATHOLOGY

The pathology is a broad phase of the subject and can only be touched. The reaction of the patient to the virulence of the infection reflects itself more or less in the lesion. The difference in the type seen in children and that seen in adults can be explained mainly on the difference in the tissues of the joints, cartilage and young bone predominating in the child. The controversy still exists as to whether the infection, so far as the joint is concerned, originates in the bone or the synovia. This is a question that cannot be definitely settled. Undoubtedly the infection can start in either one and spread to the other. From a wide experience in resections of the knee for tuberculosis in adults, I may say that abscesses in the ends of bone, either the femur or the tibia, are the rule rather than the exception. It is true that such patients are usually in an advanced stage of the disease, and the lesion, therefore, is of the terminal type. Resections

have been performed on children in a few instances, but in these, abscesses of the bone were the exception rather than the rule.

#### COMPLICATIONS

The complications that may assail the patient with tuberculosis of the joint are many, the most serious being extension of the tuberculosis to vital organs, such as the lungs and kidneys or to the meninges. Tuberculosis of the kidney is observed infrequently, and, if unilateral, no time should be lost in removing the kidney. The operation on the joint, if there is to be one, can wait. Cold abscesses should be left alone unless, merely by their size, they are causing difficulties. Even then they should not be opened and allowed to drain, but should be tapped with a trochar and cannula, and possibly idoform emulsion injected. Even if there is a low-grade secondary infection, this same procedure should be carried out. On the other hand, if there is extreme tenderness on palpation of the abscess, and the patient is noticeably septic, incision and drainage should be carried out. Amyloid degeneration comes late in the profoundly toxic and septic cases, but, fortunately, is not seen as often as in the past. Meningitis is luckily infrequent; there is no way to guard against it. There is no reason to believe that surgery is an exciting cause in its production. Early in my experience I saw two patients, healthy, robust young men, who were being given tuberculin, develop meningitis, following the removal of tuberculous epididymes. I was never able to convince myself that tuberculin did any good, and this disastrous complication, which, it is true, may have been merely a coincidence, led me to be even more doubtful of its efficacy, and finally to abandon its use. The spontaneous rupture of tuberculous abscesses that have become mildly septic is not generally accompanied by general reaction, whereas when cold abscesses become secondarily infected, after being opened, the opposite may occur. The secondary infection of a tuberculous abscess with pyogenic organisms may be a blessing in disguise, the secondary infection leading to ankylosis of the joint. It is rare indeed that a joint infected only with the bacillus of tuberculosis becomes ankylosed, and I am inclined to believe that the bacilli, *per se*, never cause solidification of the joint. If the secondary septic process is mild enough, drainage may even not occur, but ankylosis will follow, because of its presence.

#### TREATMENT

The treatment of tuberculosis of the joints is

a problem that is influenced by many factors. A clear understanding of the pathology must be kept in mind, together with certain cardinal principles. It must be remembered that a tuberculous joint is always secondary to a tuberculous focus elsewhere in the body, that the virulence of the infection varies as does the resistance of the host, that the economic problem is not so great in the child as it is in the adult, that, generally speaking, whereas conservative measures are indicated in children, radical treatment is to be favored in the adult, and that owing to the anatomic structure and physiologic function, each joint presents peculiarities that influence the method of treatment in each case. Therefore, it is difficult to lay down hard and fast rules for the treatment. It may be stated that, if cure of a tuberculous joint can be obtained by the consolidation of that joint by an ankylosis in a position compatible with function, the result will be a fortunate one. It must be conceded, however, that tuberculous joints, particularly in children, can be so completely recovered from that normal range of motion and full function will result. The same happy result may occasionally occur in the adult. Therefore to say, once the diagnosis of tuberculosis is made, that the best to be expected is ankylosis, is not correct and may unnecessarily depress the patient and his family, and lead to unwarranted surgery. On the other hand, to treat indefinitely by fixation in apparatus, for example a knee-joint in a young adult, when the disease is at a standstill with considerable bony erosion and destruction, merely because one has seen a few exceptional recoveries under conservative régime, is to display conservatism that is disastrous to the patient and a discredit to the profession. The pendulum has swung back and forth, from the extreme radicalism of the last quarter of the last century to the conservatism that immediately followed it. To-day, in the light of the knowledge gained by such experience, we have a sound base on which to establish and institute treatment in the individual case.

The records of the patients with tuberculous arthritis on whom surgical procedures have been carried out during the last year, in the Section on Orthopedics of the Mayo Clinic, have been reviewed. This study has been made the basis for my paper, and will reflect what we consider to be the modern methods of surgical treatment of these patients. Even a partial discussion of the many interesting points that have been noted during such a review, cannot be entered into here,

and I shall confine myself to the strictly surgical side of the problem.

Twenty-eight patients, fourteen males and fourteen females, with tuberculosis of the spine were subjected to surgery. The average age of the patients was thirty-one years; none was under twenty years of age; thirteen were between twenty and thirty; eleven between thirty and forty; and four between forty and fifty. Infectious disease seemed to have been the etiologic factor in nine cases, one was attributed to pneumonia and eight to influenza. Trauma had a definite bearing in four cases. A family history of tuberculosis was obtained in two.

Tuberculosis elsewhere was determined in eleven cases, in the kidney in one case, in the knee in one, and in the lungs in nine cases. The latter diagnosis was based chiefly on *x*-ray and not on clinical findings. In no instance was the sputum positive for bacilli of tuberculosis. The average duration of the disease was two and three-tenths years. The lesion was in the dorsal region in thirteen cases, in the lumbar in ten, and in the dorsolumbar region in four; in one case a median-dorsal lesion was associated with a lumbar lesion. A bone-grafting operation, according to the method of Albee (Fig. 1), was performed

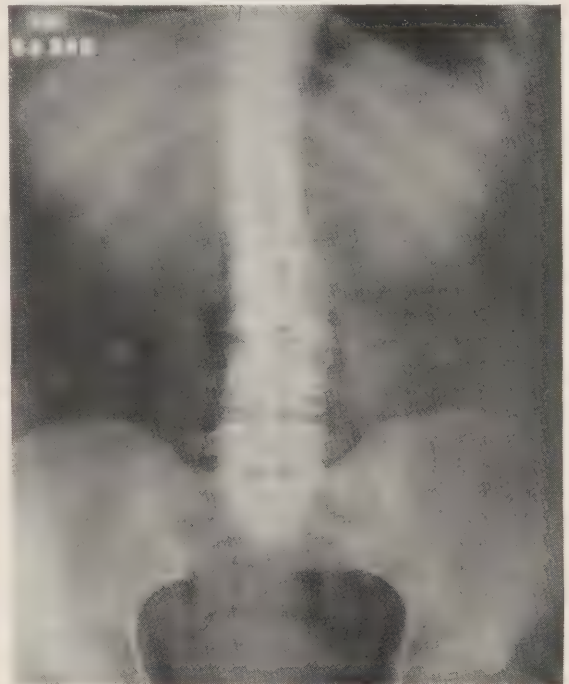


Fig. 1 (A53249). Tuberculosis of the second and third lumbar vertebrae arthrodesed by bone graft ten years ago. Results, excellent.

in nineteen cases and an osteoplastic, according to the method of Hibbs, in nine. Paraplegia was



present in three cases, and was relieved in all. Five patients had mediastinal abscesses without drainage at the time of operation. Post-operative rest in bed on a Bradford frame with a windlass attachment, as devised by Jepson, had been insisted on for at least six weeks. Following this a Taylor back-brace was worn, and was advised for one year after the time when the patient became free from symptoms. General measures, which will be discussed later, were advised, and it was further recommended that a great deal of the patient's time be spent in recumbency. Even when a patient is thought to be well, frequent rest periods during the day are insisted upon.

Eighteen patients with tuberculosis of the knee-joint were operated on (Fig. 2). Sixteen had



Fig. 2 (A201824). Tuberculosis of the knee before arthrodesis.

resections, one had a synovectomy, and one an amputation. The average age of these patients was twenty-six years. There was one patient under 10 years of age; one between 10 and 20; eleven between 20 and 30; four between 30 and 40; and one between 40 and 50. Fourteen were males and four were females. A definite history of trauma was obtained in ten; of infectious diseases in four; of influenza in three; and of scarlet fever in one. The average duration of the disease was eight and six-tenths years. A positive family history was obtained in three cases. Tuberculosis in other parts of the body was diagnosed in seven cases and in the lungs in six, the diagnosis being made by *x*-ray, and in one patient the spine and testicle were affected. Of the sixteen patients having resections (Fig. 3) and the



Fig. 3 (A201824). Same case as Figure 2, two years after arthrodesis.

one having an amputation, ten had definite bony abscesses. Fixation after operation was provided by aid of a plaster cast, and, when union was thought complete enough, a stiff-legged brace was applied. Generally speaking, tuberculosis of the knee in patients over fifty should be treated by amputation, rather than by resection.

For various reasons the remainder of the cases in the series do not lend themselves readily to classification. In the cases of tuberculosis of the hip joint, even in the operative cases in which we have been convinced clinically that the condition is due to tuberculosis, the tissue obtained during arthrodesis, and passed on to the pathologist, many times is reported as inflammatory. In the knee-joint, on the other hand, when practically the whole joint was removed by resection, the pathologic diagnosis checked up with the clinical in almost every instance. The treatment of tuberculosis of the hip is more difficult than that of the knee (Fig. 4). Since the use of the *x*-ray has become common, a sharper differentiation of the hip-joint lesions is possible, and coxa vara, and flat head or Legg's (Perthe's) disease have been rescued from the tuberculous group. We are gradually coming to believe that arthrodesis of the hip-joint is probably the best solution for the adult patient with tuberculosis of the hip-joint. Four operations were performed during the last year to produce ankylosis for what was believed clinically to be a tuberculous condition of the hip. Only one case was proved by the material given to the pathologist



Fig. 4 (A242479). Tuberculosis of the hip with total destruction of the joint and perforation into the pelvic cavity.

to be tuberculous, but the others seemed to be tuberculous, clinically. All of the patients have done very well. It is not so easy to obtain an arthrodiesis in the hip-joint as it is in the knee, and this fact, plus the technical difficulties, may help to explain why the operation is not in favor. In children the treatment should be essentially conservative (Fig. 5). Eighteen patients with

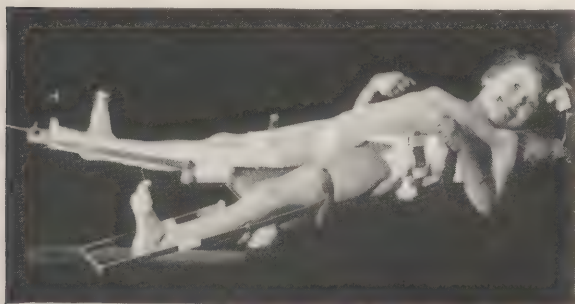


Fig. 5 (A133011). Tuberculosis of the hip in a seven-year-old girl treated conservatively on a Jones abduction frame.

tuberculosis of the hip were subjected to some surgical procedure, such as correction of bad position by *brisement forc  *, and the application of a cast, an osteotomy for adduction deformity, followed by a cast, aspiration and injection of abscesses, or arthrodiesis (Fig. 6 and 7). Five of the patients in this series were males, and thirteen females. The average age was twenty-two years. Three patients were between one and ten years; six were between ten and twenty years; four between twenty and thirty; four between thirty and forty; and one was between forty and fifty years. A family history of tuberculosis was obtained in eight. Trauma would be judged a factor in six, and infectious diseases in three.

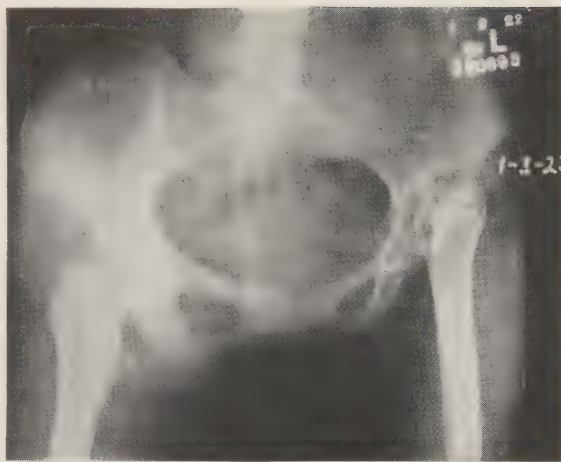


Fig. 6 (A380693). Tuberculosis of the hip in a girl seventeen years of age, before operation, showing total destruction of the joint, head, and neck of the femur.



Fig. 7 (A380693). Same case as Figure 6, after arthrodiesis. Patient now walks many miles daily without cane or crutch.

The wrist joint, though rarely affected, is difficult to control. Resection or arthrodiesis is only rarely advisable. Prolonged splinting on a cock-up splint, permitting the use of the fingers, will often lead to a cure. Secondary infection causing rupture of abscesses may also lead to ankylosis and functional cure, so far as the arm is concerned. Tuberculous tenosynovitis may be the primary focus, and the joint, the secondary. This is one of the arguments for dissection and removal of the tenosynovitis. We have obtained very satisfactory results by evacuating the tendon sheaths of their fluid and rice bodies, and injecting with iodoform emulsion. The same conservative measures are advocated for the elbow joint, although here arthrodiesis may be carried



out, and the elbow put in the position of election, if the condition is progressing. Secondary infection may ensue also. Conservative measures are the more readily accepted and radical measures deferred in the elbow joint because the problem of weight-bearing is not a factor.

The shoulder-joint offers a peculiarly difficult problem in the matter of fixation apparatus. When the condition is especially painful, a resection of the head of the bone, with removal of a portion of the glenoid fossa, is often advisable. This leaves a flail shoulder, it is true, but that is preferable to the extreme pain that is sometimes present.

Involvement of a sacro-iliac joint may completely incapacitate the patient who is otherwise in excellent condition. Here again abscesses secondarily infected may bring about ankylosis with relief from pain. In one case last year an ankylosis by operation with relief from pain was produced in three months.

After operative procedures the patient's general condition should be carefully guarded. In the way of medication, first place must be given to cod liver oil, and the next to *syrupus ferri iodidi*, particularly to children. Means must be taken to see that the food is plentiful and of the proper quality. Many tuberculous patients will not take fatty foods, avoiding milk, butter, eggs, and bacon.

Heliotherapy is a valuable aid and, with the co-operation of the family, can usually be carried out even in the cities.

Tuberculous arthritis, particularly in the adult, must always be considered as a possible surgical condition. Conservative orthopedic measures must be carried out, with or without active surgical intervention, to give adequate protection and splinting of the affected part. The teaching of Hugh Owen Thomas on physiologic rest is nowhere so applicable as here.

#### CONCLUSIONS

1. Tuberculous arthritis is always secondary to tuberculosis elsewhere in the body although it may be the prime factor in the patient's disability.

2. Conservatism is to be favored in children, whereas in adults it must be remembered that restoration to function is often an all important economic question, and opportune surgery may greatly hasten a cure.

3. The majority of the patients with tuberculous arthritis are treated conservatively by orthopedic fixative apparatus, tonics, general hygiene, and heliotherapy, but certainly a goodly number may be restored to their normal activities by surgery that otherwise might never be so restored or would be greatly delayed in attaining that goal.

4. In adults arthrodesis of the spine and the knee-joint are operations that in our hands have been of great aid. In the hip-joint arthrodesis though not so commonly performed should be undertaken more often than it is.

## ROLLIER'S TREATMENT OF TUBERCULOSIS: A CLINIC\*

By J. S. PRITCHARD, M.D.

President, Mississippi Valley Tuberculosis Association; Chief of Department of Pulmonary Diseases, Battle Creek Sanitarium

BATTLE CREEK, MICHIGAN

Mr. President, Ladies and Gentlemen:

The word tuberculosis brings sadness to our minds and hearts. For years we have heard that tuberculosis was fatal, that when diagnosed as a consumptive a patient had to die, and it has only been recently that all of us have realized fully that it is a curable disease. Many of you will recall that some years ago when tuberculosis was diagnosed in a person that person immediately went west, and was advised by the western doctor to do three things: first, seek the climate of the west; second, buy a broncho; third, have

on hand a very liberal supply of Scotch whiskey. Many of those patients who had tuberculosis succeeded in beating the climate, in overcoming the wiles of the broncho, the injurious effects of the whiskey, and the tuberculosis. Their resistance was so great, their strength was so splendid, that they overcame all these particular handicaps that are detrimental to the body, but had they desisted from the whiskey and kept away from the broncho and taken a reasonable amount of rest they would have overcome the tuberculosis much sooner. It was difficult and certainly not economic for a person to have to die to prove that he or she had tuberculosis.

\*Presented before a public session of South Dakota State Medical Association, Mitchell, S. D., May 20, 1924.

That was the sad part of the question. To-day we can give you much more pleasant facts regarding the results of fighting tuberculosis.

First of all, we can assure you that tuberculosis is curable. That does not mean that all cases of advanced tuberculosis are going to get well, but if taken in reasonable time and treated properly many patients do get well. This depends largely upon the physician and the behavior of the patient. Many do not live near a good, conscientious physician, and many others should be reinforced with a liberal supply of policemen to see that the physician's orders are carefully carried out.

To overcome tuberculosis in an individual we have no specific. We have no vaccine, we have no serum, with which we can cure tuberculosis. We must depend upon rest, nourishing food, fresh air, and very careful daily regulation of the patient's life. Of these rest is the most important. When the surgeons treat a fracture of the leg they place that fractured leg in a splint so that the parts may enjoy absolute rest. Rest is the antithesis of exercise, and exercise is anything which increases the volume or the force of the heart, so that the blood flows with greater rapidity or volume through the body. Therefore, excitement, mental worry, anxiety, sadness and trouble, arguments, religious, political or domestic, all tend to act as exercise because they increase the flow of the blood through the diseased lung.

If the heart-beats are increased ten beats per minute, you can realize how many beats in twenty-four hours the heart is increased in its work, over fifteen thousand beats; therefore, we do everything possible in an acute tuberculosis case to see that rest is maintained throughout the early stage of treatment and until such time that the lung has quieted down, until the sore in the lung has a filament stretched over it by the blood corpuscles which are helping to form a scar there. This point is the most dangerous in the patient's road to recovery because the poison Dr. Rosenow told us about has ceased to be absorbed into the blood-stream, and the patient loses the tired feeling, the weakness, the nervousness, and has lost the fever.

After this has subsided and the poison is no longer being absorbed, the patient begins to feel well, to feel strong and better than he has felt in years, and that is the time he most needs the policeman, for this film in the lung will not stand up when he begins to take more privileges, when he increases his exercise. He goes away per-

haps, does some little indiscreet thing, and this little film, which is not old or strong enough to form a scar, gives way, and the little germs are spread all through other parts of the lung and he has another fight for his life, only of longer duration.

In the treatment rest is the most important, then nourishing food; next, fresh air. Aside from these things the tuberculous patients must be treated just the same as others. Such patients are likely to have bad teeth or diseased tonsils. Other germs may work around in various recesses and hidden spots, such as the gall-bladder and the appendix, and therefore we must treat the tuberculous patient just as one of the problems of general medicine.

We will not mention all the things that are of benefit to the tuberculous patient, but sunlight is good for all of us. Water is an excellent thing, but if we have too much we will drown in it, and we have to be very careful in giving sunlight to the tuberculous patient. It must be given carefully, in graduated doses, or we will defeat the object we are working for. We will cause too great a stimulation of the system and a greater absorption of poisons.

Tuberculosis in children is what we shall deal with chiefly to-night, and I shall limit my remaining remarks to a discussion of the work of Dr. Rollier in Switzerland. He is primarily an orthopedic surgeon, that is, one who repairs bone deformities, and you know that children are more susceptible to gland and bone tuberculosis than to lung tuberculosis, and it is to these children that we shall devote the rest of our remarks.

*Slide 1:* This is Dr. Rollier, a man in the forties, who twelve years ago went up in the Swiss mountains to see if he could increase his results in surgery upon the tuberculous child, and in the correction of the diseased bones and joints of these children. He was having splendid results from his surgery but felt that if he could give them fresh air, sunshine and rest he could improve and augment his results. Such a condition he has proven and to-day we owe more to Dr. Rollier for his advanced work in the treatment of this type of disease, particularly of tuberculosis in children, than to any other one man.

*Slide 2:* Here we have a typical scene at Dr. Rollier's place in the mountains. You see the mountains in the background, and here are a number of patients who have reached the stage of convalescence. These children have been on the rest cure and are being built up in an effort to fit them for their vocations to follow. See how



well they look and how tanned their bodies are.

*Slide 3:* Here is another scene in the same region, and you notice this building is back among the pines. There is some advantage in this plan. An aroma, or odor, is given off by the pines, something like turpentine, which has a soothing effect upon the lining of the bronchial tubes.

*Slide 4:* Here we have two little children who have been operated on for tuberculosis in the hip and knee, respectively. This next picture was taken some time after the operation and shows how well they can hop around. Notice the life they are living. They take a few steps a day, increasing the steps from day to day until they reach the stage where they can be up and about for five or six hours, always followed by rest.

*Slide 5:* Here is another scene. You can see what a coat of tan these children have acquired. They are always exposed gradually to the sun and the head is always covered.

*Slide 6:* Here is a school, and you can see the various shades of tan, from the light down to the very dark, the children always taking their lessons out of doors in the sunshine.

*Slide 7:* Here are some little folk who have had the spine surgically treated. The bone has been infected with the tubercle bacillus and it has begun to decay. The surgeon has operated on them and cleaned out the decayed bone and has then put them at absolute rest and exposed them each day to a small amount of sunshine.

*Slide 8:* Here is another group, and you can see that they have acquired a great coat of tan. The sunshine is augmented from the snow-capped mountains all around by reflection.

*Slide 9:* In this picture you can see the arrangement that is made so that they can have varied exposure to the sunshine on different balconies.

*Slide 10:* Here is a picture of children with very little clothing, but they are being treated with cold-air baths as well. The sun is warm, and they are so accustomed to going without clothing that they do not mind the cold air. All the cells of the body are stimulated to greater activity.

*Slide 11:* Here we have them more courageous, going out skating and enjoying it with most of the body exposed to the sun's rays.

*Slide 12:* In this picture we can see the skis standing up here (indicating), and here are the children being tutored under the pine tree after a trip into the snow-covered mountains on skis.

*Slide 13:* This chart will give you some idea

of how Dr. Rollier administers this treatment. The first day the treatment is started one foot is exposed for five minutes; and the second day, for ten minutes on an area exposed to the ankle. On the next day they have ten minutes below the knee and five minutes above. So on up, increasing five minutes each day, but never exposing the head. In the tenth day the feet are exposed for fifty minutes, the lower legs for thirty-five, the legs above the knees for thirty minutes, and the trunk for twenty minutes. You can see from this how gradually he thinks the sun's rays should be given.

It is very detrimental to anyone to have a sudden and prolonged exposure to the sun on any part of the body. It has the effect of a general burn and that has an injurious effect on the kidneys. We should gradually increase the exposure each day and begin with only a few minutes. In this way the best results are obtained.

*Slide 14:* Here is a child with a tumor due to tuberculosis of the spine. The child was operated on and put on sun treatment in the fresh air.

*Slide 15:* This is the same child six months later, and you can see the tanning, the general enlargement of the muscles and the general development of the child with a disappearance of the tumor.

*Slide 16:* Here is a man with tuberculosis in the ankle. You can see the emaciation and general wasting.

*Slide 17:* This is the same man a year and six months later. You can see how the development has changed, the muscles are changed, the nutrition is better, and the ankle is practically restored to usefulness by being given rest, fresh air, and sunshine.

*Slide 18:* In this child you can see the enlargement of the spine due to tuberculosis, causing deformity. The surgeon straightened this, and here (Slide 19) is the same child eight months later with much improved development and nutrition due to the combined treatment above mentioned.

I think this demonstrates beyond a doubt the very wonderful work that is going on in fighting the ravages of tuberculosis, and it is with great pleasure that I came to South Dakota this week, because we have been able to bring the Mississippi Valley Tuberculosis Association, an organization which comprises twelve states, whose object is to fight tuberculosis and to improve the general health of the public—to South Dakota for their 1924 convention in September. The meeting is to be in Sioux Falls, and this was

accomplished chiefly through the very energetic secretary of the South Dakota State Tuberculosis Association, Mr. Cass of Huron. He succeeded in bringing this organization here over

great resistance from other states and he had my enthusiastic support in bringing this organization to the best State in the Valley. I thank you. (Prolonged applause.)

## CARCINOMA OF THE CERVIX: CLINICAL DEMONSTRATION OF CASES\*

By M. A. STERN, M.D.

SIoux FALLS, SOUTH DAKOTA

MR. PRESIDENT AND VISITING DOCTORS:

We are able to show you this morning three cases of carcinoma of the cervix. Two of the patients are under 30,—a very unusual and rare condition at this age. As my time is limited I shall make a few general remarks about carcinoma of the cervix, and then proceed to the demonstration of the cases.

As you know, carcinoma of the cervix and carcinoma of the body of the uterus, as far as the clinical course is concerned, are two separate and distinct diseases. We will dismiss carcinoma of the body of the uterus with the remark that it is five times as infrequent as carcinoma of the cervix, and that treatment for it at the present time is surgery.

The carcinomas of the cervix are nearly always squamous celled carcinomas. The squamous cell lining of the vagina extends on to the cervix, and there undergoes an abrupt transition into the columnar cell epithelial lining of the cervix. In this abrupt transition, of one epithelium into another, we have an analogy on the vermilion border of the lip, where there is a rather abrupt transition from skin to mucous membrane. Carcinoma of the cervix is very prone to occur at the junction of the columnar with the squamous cell epithelium, although occasionally we have them starting well within the cervical canal, rarely in the location of the internal os. There are two symptoms that are present in most carcinomas that are not stressed in the text-books:

1. A history of bleeding after intercourse. This is a very suggestive symptom of cancer, and such a history occurring in the fourth and fifth decades of life should warrant a very thorough examination.

2. The occurrence of a brownish or meat-juice discharge, usually fetid in odor. It will be well to take some pains with the patient to elicit

this history. Nearly every woman has ground steak in a meat-grinder and has noticed the blood-stained juice obtained during that process. If we bring this to her attention, and ask her if the discharge resembles that obtained from the grinding of meat, and receive a positive answer, this will be a suspicious symptom of cancer of the cervix. Occasionally this discharge does not resemble meat juice, but is brownish in character, due to the decomposition of the constituent blood pigment. Very often a patient will say that she has had leukorrhea or a pus discharge for years, but that in the last six months it has taken on a brownish coloration, is thinner, and has foul odor. Such a history is very suspicious of cancer of the cervix.

*Diagnosis.*—If, after inserting a vaginal speculum, one finds upon the cervix a ragged, irregular ulcer, and after picking up a blunt instrument, such as a pair of uterine dressing forceps, one pushes against the crater of the ulcer, and is able to break off pieces of tissue, or if such manipulation causes hemorrhage, we are able to make a diagnosis of cancer of the cervix without more ado. If the ulcer is very small, just beginning, or if there is a small tumor that has not ulcerated, we should do a biopsy and send it to the nearest pathologist.

The only common conditions that may be mistaken for carcinoma of the cervix is the lesion of lues and endocervicitis. A primary chancre occurs rarely on the cervix, but when it does it may not be mistaken, for the typical cancer, but it may be confused with a beginning cancer of the cervix. The tertiary lesions of syphilis occur rarely on the cervix, and could be mistaken for cancer. Chronic endocervicitis rarely resembles a cancer of the cervix very closely. In this condition the whole cervix is swollen and red, the mucous membrane is everted, and the epithelium of the cervix thus exposed presents a granular appearance. Upon manipulation there are no

\*Presented at the mid-summer meeting of the Sioux Valley Medical Association at Sioux Falls, S. D., July 8 and 9, 1924.



pieces to be broken off, nor does it bleed as readily or as freely as carcinoma.

Then, to recapitulate, in lesions of the cervix from which a piece is broken off, causing hemorrhage, and from which we obtain a history of bleeding after intercourse, and a meat-juice discharge, we have carcinoma. Should there be any doubt, resort to biopsy.

Experience has taught that carcinomas of the cervix vary greatly in malignancy. Following the lead of Dr. Broders, of Rochester, we are dividing our carcinomas into four grades. The pathologist estimates the grade of malignancy largely on the amount of karyokinesis and the amount of cellular differentiation, and on the presence of eosinophiles and plasma-cells. Grade 1 is the least malignant. The cells are the most highly differentiated. The cell activity, as estimated by their division, is less, and the prognosis is the best of all succeeding types. Grade 4 is the most malignant. Here the cells are undifferentiated, and there is great growth and activity, as estimated by large size and constant division of cells and their nuclei. Grades 2 and 3 are the intermediate, and vary in malignancy, as their numbers will indicate. Here we have a factor that is present and not often considered in end-results of both operative and radium treatment of cancer of the cervix. One surgeon could conceivably operate on a greater number of Type 1 carcinomas, and would therefore have better end-results. This grading of malignancy is a real help in prognosis, and to those of you who are interested along this line, I would recommend Dr. Broders' article on "End-Results of Carcinoma of the Lip."

(Patient, Mrs. H. B. is called before the meetings). This woman whom you see is now thirty years of age. She has one child. There is nothing more of importance in her family or marital history.

She first came to the office on May 4, 1921. At that time she had been flowing at irregular intervals since August, 1920. There was malaise, and there had been a loss of ten pounds in weight. When questioned she said she bled after intercourse, and that since August, 1920, or thereabouts, she had noticed a brownish, bloody discharge. Examination at that time showed an ulcerated cervix with the uterus fixed in retroflexion. A Wassermann was taken at that time, and was negative. This was repeated on two successive weeks, and all three Wassermans were negative. In spite of this, a therapeutic test was made by giving two doses of 0.45 neo-

salvarsan. By June 11, 1921, this had caused no change in the condition. A biopsy was done, the report of which was squamous celled carcinoma, Type 4 (Dr. Gregory). This was afterwards confirmed by Dr. Broders, of Rochester. On June 15 she received her first radium treatment. In all, from June 15, 1921, to January, 1923, she had received eight radium treatments. She has not menstruated since July, 1921. She has never had any particular amount of trouble or symptoms from the artificial menopause. As you see, this woman is in the pink of physical condition; has gained in weight, feels well, and is apparently cured. We believe that this is a very unusual occurrence, to have such beneficial results in a Grade 4 carcinoma (the most malignant) in a woman twenty-seven years of age.

(Mrs. J. F. is brought in.) The next case, Mrs. J. F., is twenty-nine years of age. The family history is unimportant. She has been married eight months, this being her second marriage. Her first marriage occurred twelve years ago. She has never been pregnant. She had an appendectomy in 1908, a clean case.

She gives the following history: One year following the appendectomy, (1908) she had an attack of constipation with fever, and was in bed two months with severe pain. She was well until August, 1923. At this time, while at a lake, she stayed in bathing for several hours, and she ascribes all her subsequent illness to this fact. Afterward she was taken ill and started to flow quite profusely, and was taken to a doctor in a fair-sized town nearby where she was curetted in the office—no anesthesia. The flowing continued as before, so the next month (October) she was taken to a hospital and curetted again. She was in the hospital about eleven days at this time. Three days after leaving the hospital she returned to the hospital, and a laparotomy was performed. What was done at this operation she does not know. In December, 1923, and January, 1924, she was given local treatments for bleeding. In February, 1924, she went to Rochester on account of the flowing. While there she was transfused, and given one radium treatment. She improved after this, and returned to St. Paul where, in March, she had another radium treatment. After this she improved, and was up and about, doing her housework. In April, 1924, she began having severe pain in the abdomen and back. In May, she returned to Rochester for examination, where she was dismissed as being hopeless. She returned to St. Paul and had another radium treatment. She contracted syph-

ilis twelve years ago during her first marriage. There were no treatments for three years after the beginning of the disease. Since then she has been treated at irregular intervals. She has had five salvarsans and hypos of sodium cacodylate.

As you see, we have a thin, anemic, sick woman. She looks better to-day, for yesterday she had a blood transfusion, as her hemoglobin at that time was below 30. Part of her pallor to-day is due to the fact that she is a "doper." She is accustomed to taking  $2\frac{1}{2}$  to  $3\frac{1}{2}$  grains of morphine daily on account of pain. As we put our hand on the abdomen, we can feel both to the right and left irregular nodular masses that extend two to three inches below the umbilicus. If we take a speculum and look into the vagina we will see that the cervix is entirely gone, and is replaced by a deep crater. What is left of the body of the uterus is fixed or walled in by infiltrating masses in the broad ligaments. A microscopical examination of a piece removed from the crater shows a squamous celled carcinoma, Grade 3.

A letter from Rochester confirms this microscopical diagnosis. On account of the specific history in this case, we intend to give her some salvarsan, as her blood Wassermann is positive at this time, but we feel that it will be of little, if any, use, as both conditions are present, syphilis and carcinoma. The carcinoma has reached an advanced stage, and it is impossible to do anything for it. We shall give no further radium treatments, but shall keep her comfortable until the time of her demise.

(Another patient is brought.) We have here an old lady seventy-two years of age, who looks much younger. She is active, spry, and alert mentally. In June, 1922, she began to have irregular hemorrhages, together with a foul, brown discharge. She thought nothing of it, and was not troubled further until December, 1922, when she began to bleed profusely. At that time she came in for examination. The family history is unimportant. A speculum inserted into the vagina shows the cervix replaced by an ulcerative mass, with a crater extending well into the region of the bladder. The microscopical diagnosis on this case was squamous celled carcinoma, Grade 2. She was taken to the hospital, and under ether was excochleated. As you know, the operation of excochleation consists in removing all the friable masses with a curet, and a thorough cauterization of the base afterward. The carcinoma was found to have advanced almost to the base of the bladder. She received a large

dose of radium in January, 1922, following which she improved very much, was up and around, gained in weight, and felt well. This improvement lasted until September, 1923. At this time another radium treatment was given, following which a vesicovaginal fistula was found. I might pause here to say that this fistula may be due to the radium treatment, or may be due to the advancement of the carcinoma. I am unable to say definitely which. At the present time there is infiltration in both right and left parametria, and the vagina is covered with a grayish membrane. Her general condition is still good, but the ultimate outlook is bad. She will probably live for another year.

To close, let us say just a few words about treatment. What is the proper treatment for carcinoma of the cervix? I might say that this is an unsettled question at the present time. There is no unanimity of opinion as regards the best treatment. It seems as though men, surgeons generally, are turning more and more to the radium treatment of carcinoma of the cervix. At the present time Crile and his associates are treating all carcinomas of the cervix with radium. This is being done more as an experimental measure than anything else.

I assume that you are all familiar with the operative history of carcinoma of the cervix. First and foremost, I would like to make the assertion that an ordinary simple panhysterectomy has cured but few, if any, carcinomas of the cervix. Wertheim, of Vienna, and his associates have developed an operation in which the connective tissue of the pelvis was removed after the ureters were dissected free, the iliac glands also, if involved. This is a tremendous operation, illy suited for private practice. It carries a high mortality, from 8 to 15 per cent; it also carries a high morbidity. The incidence of pyelitis, cystitis, and hernia following, is frequent. Wertheim's operability was in the neighborhood of 50 per cent. When we consider all these facts, we see that after doing this tremendous operation the percentage of 5-year cures is between 19 and 21 per cent. I am unable to give you statistics of the end-results of 5-year cures after simple hysterectomy, but they must be exceedingly small. The statistics on carcinoma of the cervix treated with radium alone vary considerably, but they will average about 25 per cent of 5-year cures. It is our opinion that the best treatment for carcinoma of the cervix is either radium alone or hysterectomy plus radium, or excochleation plus radium. Which will be the



best method, time alone will determine. At the present time we are treating our carcinomas of the cervix with radium alone. One thing is certain, namely, that hysterectomy without postoperative radium is absolutely contra-indicated. These cases should be treated by, or at least un-

der the direction of, a surgeon, and should not be in the hands of a radiologist, as the best interest of the patient demands that she should be treated by those who are familiar with the operative therapy as well as radiation.

## A SQUARE DEAL FOR THE CONSUMPTIVE\*

By S. A. SLATER, A.B., M.D.

Superintendent, Southwestern Minnesota Sanatorium

WORTHINGTON, MINNESOTA

When I think of the many means used to victimize the consumptive I cannot help but feel that this subject is timely. It is not that the ethical physician is unwilling to do everything in his power to render the patient the best service possible, but he does not always have the opportunity because of circumstances. Often the unfortunate consumptive on learning that he has the disease seeks to regain his health by means of the advertised "sure cures" offered by climate, patent medicines, and quacks. He is not willing to follow the straight and narrow path over a sufficient period of time to bring about a recovery but squanders both money and health hoping to make the task shorter and surer. He is not altogether to blame for this, for the alluring promises appeal to him like the stock of the get-rich-quick promoter appeals to the inexperienced with a few dollars to invest. It will never be possible to protect the consumptive completely from being victimized by these "birds of prey," but the physician has rendered a real service when he exerts every effort to enlighten the patient of the danger that may befall him when he seeks to recover his health by the so-called "sure route." Many times have I seen patients broken in health and in finance who had squandered both seeking to regain their health by climate or patent medicines, or had been under the care of the quack who offers to cure at "so much per." The subject of this paper was first brought to my attention by a "climate salesman" in a talk which had nothing in it to indicate a square deal for any one but the individual boosting the climate of a certain part of the country. He, like the quacks, patent medicine salesman, and others wishing to deceive, was long on a name to attract the one he had set his net to catch. At the present time there is no specific cure for tuberculosis, and he who relies on one will most

likely be disappointed. The disease is curable, and while it is not curable by any one thing, but by the proper use of all at our disposal, the results obtained are most gratifying. I am not going to say that certain climates are not of benefit; but, certainly, when depended on alone they offer a very poor chance for recovery. Patients recover in every climate, and they likewise die in all climates. A climate beneficial to one patient may not help the next in the least.

The agent which is capable of exerting the greatest good is the family physician, and it is the purpose of this paper to help stimulate in him the interest to render the service he is capable of doing. When he has done so he has rendered to the consumptive the greatest service in the form of a square deal. If tuberculosis is ever wiped out it will be due largely to the effort of the family physician, for he is the one who sees the patient first and is also the one whose advice the patient is most likely to follow. In order to render the best service it is necessary that he be able to make an early diagnosis and give the proper advice. It is his duty to become sufficiently interested in this common disease to be familiar enough with it to at least be suspicious of its presence while in an early stage. Success in treatment depends largely on how far the disease is advanced. The early case properly handled has a most excellent chance for recovery. One should not wait to make a diagnosis until germs are found. It should be remembered that before germs can be found there is breaking down or ulceration in the lungs, and then the case is no longer early. Frequently the diagnosis can be correctly made on a study of symptoms alone, or, at least, these should make one suspicious of the disease. I will admit that under the most careful study and observation it is often impossible to diagnose the disease early, for it may have reached the advanced stage before the patient ever consults the physician.

\*Presented by invitation before the Northwestern Iowa Medical Society, Sheldon, Iowa, April 23, 1924.

Every effort should be made to do so as early as possible, for it not only gives the individual the best chance for recovery but also gives protection to those with whom he associates. This I think is of the first importance in offering a "square deal" to the consumptive. To deny this is like robbing him of his time and the chance for recovery, for, if a recovery is made when the disease has become advanced, the time and expense will both be great. The early discovery and the proper care not only offer the individual the best possible chance for recovery, but also give to the family and those with whom he associates the chance to protect themselves against the disease. In a recent study made by the writer in fifteen hundred children, 81 per cent of those who had lived in a home where there was an open case of tuberculosis were infected. This emphasizes the importance of a diagnosis when possible before the case becomes open. In protecting those with whom the open case associates you are not only giving a square deal to the consumptive of to-day, but you are preventing the consumptive of tomorrow. Not doing so the consumptive of tomorrow may be a member of your family.

Having discovered the active case of tuberculosis the next thing is what are you going to do with him? There are two things to be considered, one the individual and the other protection of those with whom he associates. You can readily see that in this instance it is not the individual alone who should be considered.

The first thing that should be done is to tell the patient frankly that he has the disease. Do not fail to do this because you are afraid the patient will give up and die on being told. Not to do so is unfair both to the patient and those with whom he may associate, and the only time a physician can be excused for not doing so is in the far-advanced case with only a few days to live. It is necessary if you are to get the patient's co-operation in doing what he should to recover and take the proper precautions to protect others. Having done this the next thing is to assure him his greatest duty is to do what he should to regain his health. His co-operation is necessary if he is to be benefited and the proper precaution on his part is to be taken to protect others.

The next important thing is, How is he to be taken care of in order to recover? This depends to a large extent on the patient himself. As stated in the first of this paper there is no one thing that will bring about a recovery, but it is

the judicious use of all means at our command that offers the best chance. This may be summed up under the following heads: fresh air, good food, rest, exercise and the proper medical supervision. When advising a patient what to do many things have to be considered. I think the most important thing for any patient is contentment, and it is practically impossible for any one to recover without it. While I am of the opinion that the sanatorium offers the best chance to the average case, as well as offering the family and associates the proper protection, I realize it is not the place for all cases. The real value of the sanatorium is that it teaches the patient the importance of doing the right thing in the right way at the right time. It teaches him how to take care of himself in order to bring his disease to the state of arrest and also how to take precautions to protect others. These things are hard to impress upon him in the home, for it is hard to live a life different from those with whom he associates. When this has been thoroughly impressed upon a patient in the sanatorium, and he realizes the importance, as shown by the other patients in the institution, he can return home, and, under the care of the family physician, continue to improve until he has recovered. Instead of a physician losing a patient by sending him to the sanatorium he is often holding him. To undertake to care for him without sanatorium training success will be doubtful, and the patient will become a knocker, while with the sanatorium instruction the patient will remain willing to co-operate and be appreciative of the services rendered. If it is decided to send the patient to a sanatorium the choice of the institution should be left largely with him, but the physician should be in a position to give intelligent advice in the selection of the proper one. If the patient is one who feels that the West or the Southwest is the only place where he can recover he should go there provided he can afford it. If he prefers an institution near home he should be sent there. His wishes in this respect should be complied with, as far as possible, for the place he prefers will be the one where he will get the best results. Do not say to him, "John, you have tuberculosis and the only chance for you is to go west," for with this advice even if he had a chance it will most likely be destroyed. There are patients who would probably do better in the West than in any other place, all things being equal; but, on the other hand, only a few can afford it, and there are still fewer who would be contented. I have seen patients return from the West, after being told



if they did so they would not live six months, and, instead of dying, show a decided improvement. Most patients would have the best chance of recovery in the institution of their own state, for there the financial burden is not so great and they are not separated from their family so far they cannot see them occasionally should an emergency arise.

Mistakes are often made in telling a patient he will have to quit work and take care of himself without telling him how to do so or seeing that he does it. Even though he quits work the way he cares for himself may be more harmful than the work he did. If he changes climate he must

see that he does not depend on it alone, but places himself under a physician capable of seeing that he does the right thing to recover, if recovery is possible.

The physician who makes every effort to discover tuberculosis early and give to the patient the advice and treatment necessary to steer him clear of the many pitfalls in the way of recovery and endeavors to protect those with whom the patient associates from infection is rendering the consumptive a "Square Deal." He who neglects to do so fails to uphold the duties of the profession he represents.

## VITAL CAPACITY IN PREGNANCY\*

BY J. WARREN BELL, M.D.

MINNEAPOLIS, MINNESOTA

### INTRODUCTION

I feel that I have a little the advantage of the other speakers on the program to-night because Dr. Myers invited me in so that I could get the language used at these discussions with the full knowledge that I would have nothing to contribute. However, I have read just enough to realize that it is customary to open an article with a preamble. When Hutchinson discovered the spirometer he gave to the world an important means for ascertaining the index of physical fitness of the individual, and so on.

Now, as the time is short I shall jump to the data in hand.

The literature contains three references to vital capacity in pregnancy. Zhurakovski, in 1893, in a St. Petersburg thesis, wrote upon "Vital Capacity in Pregnant and Lying-in Women." The work is in Russian, and a summary of the data is here submitted.

1. Changes in the shape of the chest during pregnancy.

a. Upper and lower circumferences increase. The lower changes more than the upper. Younger women and primiparæ have greater increase in the upper circumference. Multiparæ and older women show a greater increase in the lower circumference.

b. Expansion is reduced in pregnancy. Expansion of the upper circumference is smaller in the young women and in primiparæ. Expansion of the lower circumference is smaller in the multi-

paræ. Age has little influence upon the change in expansion.

c. Anteroposterior diameters are increased during pregnancy. The upper is increased to a lesser degree and more seldom than the lower. Age and parity have little influence upon this.

d. Transverse diameters are also greater in pregnancy, but the upper is not constantly increased, but only in a greater per cent of cases. It is more frequently increased in primiparæ. The lower increases constantly and more than the upper frequently. In multiparæ the upper anteroposterior is changed more abruptly than in primiparæ.

e. Long diameters are usually smaller during pregnancy than after. They are decreased more frequently for younger persons.

f. Five out of six have a widened subcostal angle. In one case there was no change.

2. During pregnancy inspiration is not always greater than expiration, but only in the greatest number of cases as mentioned by Waldenberg.

a. In the majority of pregnant women both inspiration and expiration are less than on the 9th or 12th day of the puerperium.

b. Expiration is changed more markedly than inspiration.

c. Age and parity have no apparant effect upon change in inspiration or expiration.

d. After labor the inspiration and expiration return to normal under the following conditions: The longer the labor the slower the return to normal, at times not reaching the value during pregnancy until after the 12th day post partum.

\*Presented by invitation before the Medical Staff of the Lymanhurst School for tuberculous children and the Parkview Sanatorium, June 24, 1924.

3. Vital capacity during pregnancy in the largest portion (66.6 per cent) of cases is smaller than on the 9th or 12th day post partum, on an average by 150 c.c.

a. This decrease is more frequent for primiparæ than for multiparæ.

b. Age has little influence upon vital capacity.

c. Spirometric magnitudes reach their highest values in the post partum period sometimes between the 9th and 12th days, but may be much later. This depends upon the duration of labor, as well as on a quick recovery of the breathing muscles and the abdominal pressure.

This problem was very carefully worked out and stands out as a clean-cut piece of research.

Extracts from M. A. Wintrick indicate that he took vital capacity readings upon 500 women 52 of whom were pregnant, but no definite conclusions were given upon this point.

Dr. Nathanson kindly called my attention to an article by Drs. Root and Root in *Archives of Internal Medicine* September, 1923. These authors followed a case of pregnancy through the last two trimesters with repeated vital capacity readings and also with basal metabolism observations. During the last month there was a considerable rise in vital capacity, while during the whole pregnancy the weight and total oxygen consumption gradually increased, with a tendency on the part of all to return to normal after delivery. A copy of their chart was shown.

Now Minneapolis is the recognized national hub for local anesthesia as indicated by the sale of novocaine. In the same way we are recognized as the hub or national center for the publication of data concerning vital capacity. That much neglected branch of medicine and surgery known as obstetrics, strongly objects to being overlooked in such an important matter. Since the general care of the pregnant woman is usually a matter of indifference to the doctor whose chief concern is lining up another confinement case, any fool-proof device for detecting disease is of value to the patient. The spirometer in part fulfills such a need. Let us first take up the problem from the side of academic interest.

We have tables of vital capacity available in groups of women classed as to age, occupation, height, weight, stem length, chest circumference, and surface area, general activity, and, in fact, almost every possible subdivision with the omission of woman's greatest achievement, namely, reproduction pregnancy.

To get an insight into what, if any, effect the enlargement of the pregnant uterus had upon

vital capacity, the 100 readings shown in the chart were taken. These were obtained through the courtesy of St. Mary's Hospital, University Hospital, General Hospital, Maternity Hospital, Bethany Home, The Union Gospel Mission Home, the Salvation Army Home, and the Norwegian Lutheran Home. The spirit of co-operation on this project which was of no concern to these administrations was the most stimulating discovery of the survey. You will note from the chart that the visible general average was just a little below 3,000 c.c. A comparison close to that usually obtained in a similar group of non-pregnant women. The readings ranged from 1,550 to 4,450 c.c.

The cases were then grouped upon the age basis to see if any correction for age could be relied upon, with no demonstrable result.

Again we have arranged these cases in ascending order on the vital capacity reading taken at the first visit. Against this set of steps is plotted the percentage of normal for height and weight. This was done for height according to the method of Peabody and Wentworth as outlined in 1917, by dividing the individuals into groups according to height. This seems a not very accurate method, but the curve closely follows the actual vital capacity. You will note that the curve based upon weight tends to stay below the actual increase in vital capacity and the percentage of normal for height. You could have predicted this had you thought of the physiological weight increase in pregnancy stated in texts as from 20 to 25 per cent of body-weight.

The points for the stem length run closer than weight, and the points for chest circumference if put in would be all over the map.

Without the hairsplitting, data-gathering disease as well developed in my own case as in some others, I want to advance the statement that for comparison of vital capacity in pregnancy with vital capacity in normal conditions, the height comparison is much the fairest one. This brings up the comparison and classification of all standards into two groups, fixed and variable.

I. Fixed group includes height, stem height, and possible age, and, if you will, the interspinous measurement suggested by Root.

II. The variable standards include surface area, weight, chest circumference, height of the fundus, duration of pregnancy, and any other bizarre coefficients.

When one considers that women, like shoes, are often developed to please the eye rather than to perform some useful physiological function, and



are not all made on the same last, and that the fat ones grow fat during pregnancy, and the thin ones grow thin, it is up to us to make our standards for clinical use as simple and direct as possible. Therefore use the fixed standards only, and of these prefer height as being the easiest obtainable, and sufficiently accurate for cases with no gross disproportion between legs and trunk, and in those cases measure the stem length.

Long before I have reached this point your keen and penetrating minds have asked themselves the question, "Why use any standards at all if there is such a great variation in patients?" I want to apologize for my behavior on the grounds of emotion rather than reason. I simply heard the band play "Gump, Gump, Gump, the Boys are marching," and I put on my uniform and fell in line. Like pulse, respiration, temperature; and especially blood pressure, the intelligent interpretation of vital capacity depends on knowledge of previous readings. This is especially true in pregnancy, where the added strain of mechanical work is constant in the last trimester. Only in this way can we make the best comparison between the pregnant and the non-pregnant woman. You all know the difficulties of getting private patients to submit to simple prenatal care, and the institution cases are usually far along when first seen, so the true comparison will be a matter of several years to thoroughly develop.

Fortunately, no one believes that vital capacity is immediately affected by conception. In fact the changes in the first trimester are not such as to be logically connected with changes in vital capacity. The accompanying chart shows the general direction taken by a few cases through various fragments of pregnancy where vital capacity is available. Though it looks like a railroad map or a bunch of chromosomes it suffices to show that there is no absolute uniform effect on vital capacity, but that there is a very great difference in behavior in different cases,—an individual variation, just as with B. P. which was lost sight of in the first enthusiasm for B. P. readings on the part of insurance companies. Though the number of cases is small and the period of observation is short, it is sufficient to keep us from any other dogmatic statements.

Whatever affects the vital capacity outside of pregnancy may do so during pregnancy. Now that we are all feeling the population pressure expressed in terms of high cost of living, let us see what effect population pressure has upon vital capacity. Two sets of twins in utero gave

continuous vital capacity readings of over 100 per cent and up in the region of 3,600 to 4,000 most of the time. This vital capacity is at the high end of the range and suggests the possibility of a temporary functional increase in oxygen demand, and argues strongly against interference due to abdominal distention.

Close inspection of some of these curves shows slight reductions accompanied by periods of edema and dyspnea.

Effort to group the cases upon fundal height is so far without results.

Some cases remain extremely constant over periods of several weeks even in the last trimester.

In a strikingly large number of cases the very low readings were obtained in cases with clinical valvular disease of the heart without having attracted much attention from the clinician because they were apparently compensated.

The purpose of these efforts is to secure some slight idea of how to interpret the vital capacity reading in pregnancy to the advantage of the patient and in the interest of science.

## BOOK NOTICES

OPERATIVE SURGERY COVERING THE OPERATIVE TECHNIC INVOLVED IN THE OPERATIONS OF GENERAL AND SPECIAL SURGERY. By Warren Stone Bickham, M.D., Phar.M., F.A.C.S. In six volumes. Cloth. Price, \$10 per volume. Volume I. Pp. 850, with 921 illustrations. Volume II. Pp. 877, with 1088 illustrations. Philadelphia: W. B. Saunders Company, 1924.

Volume I of Dr. Bickham's work takes up the consideration of the general measures of pre-operative and post-operative treatment of the patient and the administration and precautions of anesthesia. The treatment of the dangers of anesthetics is especially noteworthy. Skin grafting, plastic surgery, amputations, and cineplastic amputations and their prosthesis are very well recorded. The discussions of resections and excisions are thoroughly given.

Of special value in Volume 2 are the treatises on blood-vessel surgery. The lymphatics, nerves, bones, joints, muscles, tendons, ligaments, cartilages, bursæ, and fascia are well covered, and methods of localization of lesions in the brain and cord, as well as their surgical treatment, are given completely.

For some reason, apparently typographical, there occur occasional grammatical errors and misspelled words. This, of course, detracts from the value of the work; it is, however, apparently the only criticism one can make of this publication. The diction is excellent, the style is terse and comprehensive, the anatomical references are careful and accurate.

In all, this is a very excellent and monumental collection on surgical technic.

—DANIEL H. BESSESEN, M.D.

# THE JOURNAL-LANCET

Represents the Medical Profession of

**Minnesota, North Dakota, South Dakota and Montana**

The Official Journal of the

**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

AUGUST 15, 1924

## EPILEPSY

This is an old-time subject and one which interests both general practitioner and family physician for its frequency is so great that it is impossible in many instances to determine anything as to its cause. Consequently, the majority of us diagnose many epileptics as of the idiopathic type because we are unable to analyze a case from its history or its onset so as to present a feasible and tangible opinion. In an abstract from the International Survey of Medicine, as reported by Maximilian Kern, Hospital Social Service, of May, 1924, it is said that practically all real progress in solving the mystery of the etiology of epilepsy has been limited to the past twenty-five years. Of course, this does not mean to convey that we know any more at the present time about the disease or its cause than we did fifty years ago; but there is a suggestion that it is possible that idiopathic epilepsy and endocrine imbalance may be one of the newest explanations. And this same study has shown that organotherapy has accomplished more in a few years than empiric pharmacopia in decades. It is quite probable that idiopathic epilepsy is a toxemia which results from endocrine disfunction or defect and acts upon the nervous system. Under such circumstances one would expect to find harmonic imbalance producing defective metabolism, for it is well known that the thyroid and suprarenal glands are regulators of metabolism and elimination. It is supposed, too, that the parathyroid

glands play an important part in the destruction of toxins, particularly those which attack the nervous system, and with the pituitary body are immediately related to calcium and phosphorous metabolism, which is apparently concerned in the production of epilepsy. This interrelation of epilepsy and the endocrine glands is supported by many well-known authorities, men who are in constant touch with both epilepsy and endocrine disorders. Hence we have to consider, in the treatment of idiopathic epilepsy, the use of many endocrine products, beginning with the pituitary gland, including the thymus and thyroid gland, and in addition the suprarenals and probably some of the sex glands. The result is that many of the pharmaceutical houses are presenting for our consideration pleuriglandular substances, and, undoubtedly, in some instances their efforts are rewarded; but it is a very difficult matter to say which gland or which substance is right in theory and practice. It is well known that many cases of epilepsy that are treated with large doses of pituitary-gland substance (of the anterior lobe) and at the same time given small doses of luminal seem to get well—doubtless, some of them, without the luminal; for it cannot be denied that the glandular substances are very efficacious in well-selected cases. It is possible that we shall have a revolutionary idea of epilepsy, particularly of this type, and that the bromides and luminal will be discontinued and glandular substances substituted. At all events, it is not well to hazard too much on the use of gland substance alone, for, in spite of the fact that idiopathic epilepsy is something that develops without apparent cause, there are, in many instances, well-defined and traceable causes that, if removed, will permit the epileptic to recover. The writer has been chagrined, on several occasions, to find that he has overlooked a bad tooth or a tonsil containing pus, or that he has failed to clear out the alimentary tract and keep it clear by proper diet and other things which tend to improve the general condition of the patient.

The question of trauma in epilepsy always confronts us, and with the lay people it is a very important factor, for, as a rule, some member of the family can recall that the patient in early childhood fell off a chair or table or was dropped by a nurse, injuring its head, and, although many years have elapsed between the injury and the development of the epilepsy, they constantly refer to the fact that the child had an injury, all of which is interesting, and the account should be entertained, but, unfortunately, it is of little value from a prognostic standpoint except to say



that it is bad, for an old injury to the head, assuming there was an injury, may leave behind it a change in the skull vault or an adhesion of membranes which present more or less pathology. The time between the injury and the development of the disease is usually so long that operative interference is usually valueless. Very few cases of so-called traumatic epilepsy are recoverable unless the operation is done at the time of the injury; and yet the surgeon hesitates because he does not know whether a fracture has occurred or what has happened. And it is doubtless true that if the surgeon were a little more courageous and the neurologist more optimistic, some of our cases of epilepsy would never have developed epilepsy, if surgical interference had been carried out early and thoroughly. But so many boys and girls are sliding about the country falling off high places and bumping their heads that it would keep the surgeons pretty busy repairing these people because of a fear that they might have epilepsy after their head injury. The final solution of this question lies in a very careful study of the family history and the possible hereditary influences which surround the defect in the epileptic individual.

#### ALCOHOL AND LONGEVITY

This is another trite subject, perhaps, but most of the world is more or less interested perennially in the consumption of alcohol and, at present, in the acquisition of it. The country seems to be more or less abundantly supplied, and, although the general public look upon the purchase of alcohol as a doubtful experiment, there seems to be plenty in stock—somewhere. The man who goes after it usually gets it, but he takes his life in his hands with the character of his drink. His breath smells worse than the tongue of a chronic gastro-intestinal toxemia case, and yet he goes blissfully and cheerfully on his way. He never stops to think of what he may get hold of sometime and what may happen to him at any time. The marvel of it all is that men live as long as they do, and every now and then in the press we see an item fathered by some scientist or pseudo-scientist in which he makes the statement that even a moderate use of alcohol shortens life; that every time a man takes a drink he is going to pay for it by the cutting down of his years. And then a half dozen old people bob up as a shining example of the falsity of his statement! Three out of six centenarians will point with pride to the fact that their old age, their long and healthy life, is due to the fact that they always drank hard liquor, while the other three will with

equal confidence assert that they ascribe their good health and their century of years to the fact that they have always abstained from alcohol and tobacco. The statements of the six are of no value whatever to statisticians. These people were inbred, born of good ancestors, and have a tissue inheritance that makes it impossible either to pickle them or to kill them, and under any circumstances they would all have lived to the same age.

In a quotation from the *British Medical Journal*, May 31, 1924, Raymond Pearl takes a little different attitude. He admits frankly that the excessive use of alcohol shortens life because it leads to so many other neglectful conditions, such as absence of food, exposure, injury, and other things that really are more responsible for the death of the chronic alcoholic than alcohol itself. Pearl states that it has not been possible up to this time to determine whether the consumption of alcoholic beverages in moderation has any effect on life expectancy or, if it has, what is the nature and sense of that effect. The prohibitionist will not take very kindly to this view because he is confident and will assert with positiveness that any alcoholic beverage whatever is detrimental to human life. The author quoted above analyzed the data obtained from 6,000 individuals representing the families of the working class of Baltimore. This information was gathered by trained eugenic field workers and covered alcoholic habits throughout life, taking into consideration the race stock and the social and economic status. This investigation showed that in every age from thirty to a hundred years, inclusive, the persons in the "all moderate" class of drinkers, whether men or women, have a somewhat higher life expectancy than persons in the abstainer class of the same age. (This statement is contrary to the teaching of our text-books on temperance. They make no such broad investigations, but they make assertions which are dependent upon the views of the writer of the text-book; as a rule these people are trained prohibition fanatics).

Another statement Pearl makes is that men in the "all heavy" class have a markedly lower expectation of life at all ages from thirty to a hundred years, inclusive, than men in the "all moderate" class, and a moderately lower expectation of life than persons in the abstainer class up to and including the age of sixty; from that age on the expectancy of life is somewhat, though not greatly, higher in the "all heavy" class than in the abstainer class. From this opinions may be based upon the selective effect of the very high

mortality in the heavy drinking group prior to sixty years of age.

Women seem to withstand the use of alcohol by showing a markedly lower standard of life than do men. The "moderate steady" class, which is, from certain points of view, the most important, shows consistently the highest expectancy of life at all ages from thirty to a hundred, inclusive, in the case of women, and also in men, except that after seventy the "all moderate" male group has a very slightly higher expectancy than the "moderate steady" male group. This investigation and these statements would seem to encourage men to drink a little. That is not the design of the editorial. It simply points out the method of investigation and the study of the types of individual, based, perhaps, on a more careful estimate than is the usual case. Now that blended drinks are being sold, drinks that are manufactured by boot-leggers and poor chemists, the probabilities are that the mortality rate will increase to a much higher point than ever before. And the investigation of the 6,000 individuals quoted probably represents a class of drinkers who were accustomed to alcohol that was more or less safe.

Now that there has been so much discussion as to the necessity of light wines and beer, the people are waking up to the possibility that the Eighteenth Amendment may be made valueless. They should not expect too much, for it is quite likely that the Eighteenth Amendment will stick for a long time, even though it is grossly violated and even though investigation has shown that in the past year thirty million gallons more of hard liquor were consumed than the year previous. The light-wine-and-beer proposition will not give the individual much comfort. For instance, in the *Finska läk.—sällsk. handl.*, Helsingfors March and April, 1924, in an article on the "Action of Alcohol In a Weak Solution," we are given quite a different impression of the difficulties that attend the beer-drinkers particularly. In these malted liquors, where the alcohol content ranged from 1.73 per cent to 2.74 per cent, it was shown there was a definite disturbance of co-ordination for finer movements; for instance, it was difficult to thread sewing needles. And the test further attempted to find out how long it took the individual to co-ordinate correctly. It was found that large quantities of beer had to be consumed in order to determine in what concentration of alcohol beer could give rise to acute injurious symptoms. In order to test this out it was found that the beer to be consumed must be drunk within a comparatively short time, and it was not

found feasible to drink more than two liters at a time. Control tests were carried out with fruit juices and water and the intake of a large amount of fluid. The duration of the tests was from twenty-nine days in one case to thirty-one days in another. Altogether four different grades of beer were tested, and the observations were correctly recorded. The beer was consumed early in the morning and a little food was taken with it. It was found that the consumption of the strongest beer was associated with slight but definite impairment of co-ordination, whereas this was not the case with the weaker beers. Beer containing the larger content, 2.74 per cent of alcohol, had an unfavorable effect when consumed in large quantities within a short period or on an empty stomach. Such beer was found, therefore, to belong to the category of alcoholic drinks that interfere with the best functioning of the human body. To those of the medical profession who were in foreign lands before prohibition times, where beer was the article of choice by 99 per cent of the people, will not wonder that beer consumed in large quantities may produce some effect; and if it produces an inco-ordination together with a fat increase, a sluggishness, and a dulling of the intellectual faculties, it seems unlikely that such experiments will meet with approval.

#### THE NORTHERN MINNESOTA MEDICAL ASSOCIATION

This Association held its annual meeting at Duluth, Minn., on August 4 and 5. The headquarters were in the Auditorium of St. Mary's Hospital, an ideal place for a meeting. The registration bureau was located down stairs and the meeting hall one flight above, the latter seating one hundred people comfortably.

The Association had its most successful meeting in its four years of life at Duluth, and the success of the meeting was due in part to the city of Duluth and its large clinical facilities. There are but two hospitals in Duluth, St. Mary's and St. Luke's, both of which are in the million dollar class and quite naturally the busy medical men are connected with one or the other hospital. The further success of the meeting was due to the activity of the committee, men who had it in charge. First of all was Dr. W. L. Burnap, of Fergus Falls, who has been its secretary and this year its president and who has been the prime and active individual press agent of the society of which he is the male parent. Then, too, Dr. O. J. Hagen, of Moorhead, vice-president, seemed to be much in evidence and Dr. W. W. Will, of Bertha, secre-



tary-treasurer, was not behind in the running. The local men in Duluth, Dr. E. L. Tuohy, who was chairman of the general arrangements and his able associate, Dr. O. W. Rowe, were responsible for the excellence and smooth running of the program and the clinics. Of course, many other Duluth men and many members of the program committee participated in the success of the meeting.

There were 154 registrations, and all of the sessions were held at the one meeting-room. This included all sessions and clinics. There were many papers read by men from Duluth, Rochester, St. Paul, and Minneapolis, and occasionally a paper from the men from the smaller cities of the state. One of the outstanding events was the banquet at the Northland Country Club, where Dr. Gideon Wells, Professor of Pathology, University of Chicago, gave a very interesting lantern-slide demonstration and talk on "The Relation of Heredity to Cancer."

The next meeting of the Association is to be held at Brainerd, Minn.

## NEWS ITEMS

Dr. Robert Schwyzer has located at Blackduck.

Dr. John F. Fulton, of St. Paul, has returned from Europe.

Dr. S. A. Kleger has resumed practice at Mellette, S. D.

Dr. H. M. Knudtson has moved from Pipestone to Browerville.

Dr. Christian Jelstrup has moved from Petersburg, N. D., to Kindred, N. D.

A United States Hospital for the treatment of trachoma opens Monday at Eveleth.

Dr. J. A. Cosgriff, formerly of Lamberton, has begun work as a member of the Mankato Clinic.

Dr. R. M. Wheeler, formerly of Hot Springs, S. D., has located in Oak Park, Ill., a suburb of Chicago.

The North Dakota State Medical Association will hold its annual meeting on September 10 and 11 at Bismarck.

Dr. Mabel Ulrich, of Minneapolis, has been reappointed a member of the Board of Public Welfare of the City.

Dr. Hans Hansen, of Logan, Iowa, has been appointed head medical officer of the Veterans' Hospital at St. Cloud.

Miss Irene Jordan resigned last month as superintendent of the Red Wing Hospital, and was succeeded by Miss Selma Olson, of Minneapolis.

Dr. I. K. Critchfield, formerly of Kenmare, N. D., who has been doing postgraduate work in Chicago for several months, is now located in St. Cloud.

Dr. O. F. Leedahl, of Stanley, N. D., was re-elected for the third time chief medical examiner of the Sons of Norway at their meeting in Racine, Wis., last month.

The Medical School of the University of Minnesota will give a short course in general medicine September 15-27 at the University and the Twin City Hospitals.

Dr. Karl H. Van Norman, superintendent of the Miller Hospital, St. Paul, has returned from Europe, where he spent six weeks in visiting hospitals, mostly in England.

Dr. Horace G. Murdock, of Taylor's Falls, died last week at the age of 66. Dr. Murdock graduated at Rush in the class of '81, and had practiced since that time in Taylors Falls.

Dr. Paul M. Gamble, a recent graduate of the University of Minnesota, has formed a partnership with his brother, Dr. J. W. Gamble, of Albert Lea, under the firm name of Drs Gamble & Gamble.

Dr. E. W. Fahey, of Duluth, who has been acting by appointment supreme physician of the Knights of Columbus, was elected to that position at the recent meeting of the national convention of the order in New York City.

North Dakota has two counties in which there is no physician. They are Oliver and Billings. The former is a narrow county, and is served by "borderline" physicians; and the latter county is composed of bad lands with few people.

Dr. Frederick H. Bailey, of Fargo, N. D., died last month at the age of 57. Dr. Bailey graduated from the Medical Department of the University of Buffalo in the class '93. Dr. Bailey specialized in eye, ear, nose and throat work.

The leading county fairs of North Dakota have given, or will yet give, health exhibits. Those already given attracted wide attention from the public, and the clinics given were attended by large numbers of persons, especially children.

Dr. W. F. Bleifuss, chief deputy health officer of Rochester, has quit the practice of medicine to take up farming. Dr. Bleifuss was not only an excellent local health officer, but he took part in the improvement of general health condition in Minnesota and the country.

Dr. J. E. White, formerly of Oklahoma, has begun work as successor to Dr. P. M. Bowdish, for several years superintendent of the Sand Beach State Tuberculosis Sanatorium at Lake Park. Dr. Bowdish has gone to Wheeling, W. Va., to continue the same line of work.

At the annual meeting of the Minnesota Sanatorium Association, held at Thief River Falls last month, an invitation was accepted to meet next year with the Wisconsin Association. Dr. L. G. Guyer, of Nopeming, was elected president of the Association to succeed Dr. M. G. Milan, of Warren.

Montana opened its new State Hospital for Tuberculous Children at Salem last month. The altitude of Salem and the weather conditions throughout the year are said to be about the same as at Leysin, Switzerland, where Professor Rollier carried on his sunshine cure. The work in Montana will be along the same line as the work in Switzerland.

The Aberdeen and Whitestone District Medical Societies and the Aberdeen Dental Society, of South Dakota, held a joint meeting last month. Papers were read by Dr. W. J. Marcle and Dr. Stanley Maxeiner, of Minneapolis, and Dr. G. O. Goodman, of Milbank, the latter on "Preventive Dentistry." Games, swimming, and fishing furnished the amusements, and all voted the meeting a grand success.

The Northern Minnesota Medical Association held its mid-summer meeting at Duluth on August 2 and 3. The papers, talks, discussions, and clinics, together with the entertainment, made the meeting the best, with the largest attendance, in the history of the Association. The following officers were elected: President, Dr. E. L. Tuohy, Duluth; vice-president, Dr. J. A. Thabes, Brainerd; secretary-treasurer, Dr. W. W. Will, Bertha. The next meeting will be held at Brainerd.

#### **Fine North Dakota Practice for Sale**

An established North Dakota practice in the largest city in North Dakota. Address 127, care of this office.

#### **Office For Rent In Minneapolis**

Office of three rooms with private waiting-room. Sixth floor Yeates Building, Nicollet and Ninth, Minneapolis. Tel. Main 7322.

#### **Practice For Sale**

One of the best practices in South Eastern North Dakota in a city of 1,800. Good high school, good railroad center and one of the best mixed farming districts, with no crop failures. Am going to the city to specialize. Practice for sale with or without residence. Good opening for German-speaking doctor. Address 124, care of this office.

#### **An X-Ray Technician Wants Work**

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### **X-Ray Machine for Sale**

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### **Minneapolis Office Space to Sublet**

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### **Practice For Sale In Minnesota**

Established Minnesota practice for sale at invoice; excellent gravel roads; sound dairying and farming community; large consolidated schools with gymnasium; collections good; modern offices with dentist. Specializing. Give qualifications. Address 119, care of this office.

#### **X-Ray and Laboratory Work Wanted**

Position in doctor's office, clinic, or hospital by a woman thoroughly efficient in x-ray and laboratory work. Five years experience in doctor's office as x-ray technician, bookkeeper, and stenographer. Have completed a six months laboratory course. Address 120, care of this office.

#### **Position Wanted**

A nurse with three years' office and laboratory experience desires a position in an office or small hospital. Employed last year as surgical supervisor and laboratory nurse in large hospital. Excellent references. Address 128, care of this office.

#### **Position Wanted by X-Ray and General Laboratory Technician**

A graduate of the Minneapolis Hospital Laboratory in x-ray and general laboratory work, with experience in St. Mary's and other hospitals. Best of references. Address 129, care of this office.

#### **Physician's Office Equipment for Sale in Twin Cities**

Consists of white enameled office unit of several pieces, also reception room furniture, sterilizers, bookcase, drugs, and other articles. Almost as good as new. Price very low for quick sale. Rare opportunity for beginner to get equipment at small cost. Address 123, care of this office.

#### **Practice for Sale in North Dakota**

General practice for sale, with opportunity for surgery, in town of 1,200 in the Red River Valley. One other physician. Good roads, good schools, including State Normal, hospital owned and run by other lodges. Reason for leaving, am going West. Address 126, care of this office.

#### **Physician's Office Furniture, Etc., For Sale**

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.



# PHYSICIANS LICENSED AT THE JUNE (1924) EXAMINATION TO PRACTICE IN MINNESOTA

## UPON EXAMINATION

Name	School and Date of Graduation	Address
Andersen, Silas Carl	U. of Minn., M.B., 1924	2618 W. 52 St. Minneapolis
Anderson, Mark J.	U. of Minn., M.B., 1924	Gen. Hosp., Hackensack, N. J.
Anderson, Reuben M.	U. of Minn., M.B., 1924	2420 33 Ave. S., Minneapolis
Bieter, Raymond N.	U. of Minn., M.B., 1924	2015 Dayton Ave., St. Paul
Buscher, Julius	U. of Kiel, Ger., 1919	800 Univ. Ave., St. Paul
Calvert, Charlotte Joslin	U. of Minn., M.B., 1924	3700 California St., San Francisco, Cal.
Cooke, Harry Hamilton	U. of Minn., M.B., 1924	N. W. Hosp., Minneapolis
Culver, Lucian Glenn	U. of Minn., M.B., 1924	510 Essex St. S. E., Minneapolis
deCarle, Donald Wilson	U. of Minn., M.B., 1924	429 Union St., Minneapolis
Eberson, Frederick	U. of Minn., M.B., 1924	U. of Minn. Med. School, Minneapolis
Endress, Edward K.	U. of Minn., M.B., 1924	N. P. Hosp., St. Paul
Exley, Erwin Wm.	U. of Minn., M.B., 1924	Miller Hosp., St. Paul
Fehland, Harold Roland	U. of Minn., M.B., 1924	Miller Hosp., St. Paul
Frost, Russell H.	U. of Minn., M.B., 1924	Willmar, Minn.
Goblirsch, Andrew Peter	U. of Minn., M.B., 1924	Wabasso, Minn.
Greenfield, Arthur William	U. of Minn., M.B., 1924	917 21st Ave. S. E., Minneapolis
Griffith, Wm. Hugh	U. of Minn., M.B., 1924	603 Delaware St. S. E., Minneapolis
Groschupf, Theo. Paul	U. of Minn., M.B., 1924	329 Union St. S. E., Minneapolis
Hargreaves, John Morris	U. of Minn., M.B., 1924	629 Wash. Ave. S. E., Minneapolis
Howard, Marshall Ignatius	U. of Minn., M.B., 1924	Sherburn, Minn.
Hochfilzer, Johann	U. Innsbruck, Austria, 1919	1237 Lowry Bldg., St. Paul
Jensen, Alvah Henry	U. of Minn., M.B., 1924	Hutchinson, Minn.
Johnson, Walter Royle	U. of Minn., M.B., 1924	3200 18th Ave. So., Minneapolis
Just, Herman Joseph	U. of Minn., M.B., 1924	Gen. Hosp., Kansas City, Mo.
Larson, Leonard Morgan	U. of Minn., M.B., 1924	603 Delaware St. S. E., Minneapolis
McGranahan, Jas. Henry	U. of Minn., M.B., 1924	Alameda Co. Hosp., San Leandro, Cal.
McKinnon, Angus A.	U. of Minn., M.B., 1924	603 Delaware St. S. E., Minneapolis
Meyer, Herbert Chester Edward	U. of Minn., M.B., 1924	Gen. Hosp., Minneapolis
Mills, James Theo.	U. of Minn., M.B., 1924	Wash. Blvd. Hosp., Chicago, Ill.
Myre, Clifford Russel	U. of Minn., M.B., 1923	3428 5th Ave So., Minneapolis
Moe, Thomas	U. of Minn., M.B., 1924	1395 Chelmsford St., St. Paul
Nelson, Oliver Earl	U. of Minn., M.B., 1922, M.D., 1924	Gaylord, Minn.
Noble, Thos. Elwood	U. of Minn., M.B., 1924	So. Pacific Hosp., San Francisco, Cal.
Paul, Lester Warner	U. of Minn., M.B., 1924	Gen. Hosp., Minneapolis
Peterson, Edward Nohl	U. of Minn., M.B., 1924	Ancker Hosp., St. Paul
Polczak, Jacob Anthony	U. of Minn., M.B., 1924	923 Marshall St., Minneapolis
Radl, Robert Bernard	U. of Minn., M.B., 1924	Gen. Hosp., Minneapolis
Roust, Henry A.	U. of Minn., M.B., 1924	Mankato, Minn.
Sanderson, Melville	Loyola, M.D., 1918	Minneota, Minn.
Scanlan, Jerome Edward	U. of Minn., M.B., 1924	Piedmont Apt., St. Paul
Schwyzer, Robert	Zurich, 1918	7th & Exchange Sts., St. Paul
Smith, Ebenezer Knox	McGill, M.D., 1923	741 Quincy St. N. E., Minneapolis
Stomberg, Carl Winfred	U. of Minn., M.B., 1924	531 Walnut St. S. E., Minneapolis
Tangen, Geo. Martin	U. of Minn., M.B., 1924	Gen. Hosp., Minneapolis
Thorson, Stuart John	U. of Minn., M.B., 1923	Univ. Hosp., Minneapolis
Tollefson, Donald Gasman	U. of Minn., M.B., 1924	Cal. Luth. Hosp., Los Angeles, Cal.
Trueman, Harold Spencer	Leland Stanford, M.D., 1924	3502 Chicago Ave.
Vik, Melvin	U. of Minn., M.B., 1924	St. Joseph Hosp., St. Paul
Wilder, Robert Lawson	U. of Minn., M.B., 1924	Care of Walter Reed Hosp., Washington, D. C.
Young, Irving Henry	U. of Minn., M.B., 1924	211 Harrison Ave., Harrison, N. J.
Young, Nelson A.	U. of Minn., M.B., 1923	N. P. Hosp., St. Paul

## THROUGH RECIPROCITY

Bishop, Albert Henry	Chicago Homeo. Med., M.D., 1900	West Bent, Ia.
Grace, Frank Gaines	N. W., M.D., 1902	1035 E. Franklin Ave.
Green, Earle Ira	Rush, M.D., 1923	Rochester, Minn.
Heetderks, Dewey Ralph	U. of Mich., M.D., 1922	Rochester, Minn.
Lancaster, Wilson McArthur	Western Med., London, Ont., M.D., 1909	Wahpeton, N. D.
Lundy, John Silas	Rush, M.D., 1920	Rochester, Minn.
McMahon, Maurice Jos.	Creighton, M.D., 1923	Prior Lake, Minn.
Omohundro, Miles Parker	U. of Va., M.D., 1922	Rochester, Minn.
Spencer, Noal W.	Omaha Med., M.D., 1899	Sioux Falls, S. D.
Sporre, Knute Alexis	U. of Iowa, M.D., 1919	Harris, Iowa

# THE JOURNAL-~~L~~ANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 17

MINNEAPOLIS, SEPTEMBER 1, 1924

Per Copy, 10c  
A Year, \$2.00

## MODERN CLASSIFICATION OF PSYCHOSES\*

By W. A. JONES, M.D.

MINNEAPOLIS, MINNESOTA

An epigram of unknown origin states that half the world is crazy, but which half we do not know. At all events it simplifies the classification of mental diseases if we accept this. It perhaps would be fairer to say that the classification divides the world into two parts, the sane and the insane; and yet, if we studied the older writers, we would find that there was the same difficulty in classifying mental disorders then that there seems to be at the present time.

To attempt to recite the various tables of classification that are given by many authors would take up an entire evening; but it is interesting to note that from the early times to the present day there have been comparatively few changes in the general acceptance of terms used to denote certain psychoses. And as our knowledge of the individual and of the race is increased we look at the psychoses from a somewhat different angle. The field of general medicine, as well as the field of mental disorders, has been broadened considerably, and the study of biology has made it easier to comprehend the problems in psychoses. In recent years biology has opened up a new path for what we used to term loosely "psychology." This latter word has been very much abused, very much overrated, and, as Henry James has said, "it is a nasty little thing, anyway." But when you understand that psychology of to-day is the science of behavior, it fits in well with biology and heredity. Then, too, we

appreciate that many mental disorders are so closely associated with bodily disorders that there is a better prognostic outlook than we have formerly held. The relief of somatic diseases or disorders sometimes is the turning-point in not only the development but the relief of a disordered mental state. The problems of adjustment of the nervous mechanism are rendered more simple by the appropriate adaptation to environmental conditions, and in this way it becomes a thoroughly biological problem. Then, too, the reaction of the patient, as a whole individual, from the conditions underlying every problem in psychiatry is important. Hence all bodily functions must be investigated before an intelligent conclusion can be reached from the standpoint of diagnosis, prognosis, and treatment of the mental condition.

To the uninformed a mental disease means a chronic disorder; to those who have given the subject sufficient study it is accepted, now, that the recoverable forms of insanity are increasingly observed. To biology, heredity, evolution, and natural selection we can credit a decided advance in the study of diseases of the nervous system. It will be observed, too, that mental disorders, instead of leading up to almost confusional states in the mind of the student, may be greatly simplified when it is realized that excitement, depression, confusion, and stupor are the four fundamental mental signs which we look to in our studies for classification.

There has been much discussion as to the term

\*Presented before the Hennepin County Medical Society, Minneapolis, March 3, 1924.



"insanity," and from some sources it is claimed that there is no clean-cut and commonly accepted definition, for the reason that it goes back to the time when it was believed that sickness of the mind was all of one sort. Appleton's Medical Dictionary frankly calls "insanity" an "obsolete medical term." The word "psychoses," used in the plural, is acceptable and suggests fairly well the present attitude of this department of medicine, which may regard certain mental conditions, paresis, dementia precox, paranoia, and others, just as general medicine regards typhoid fever, pneumonia, or smallpox. The court and the jury, and particularly the legal lights, demand a definition; and if you want to put up something that is almost unbreakable you may define insanity as "a disease of the brain with psychic manifestations," or as Dercum defines it, "a diseased state in which there is more or less persistent departure from the normal manner of thinking, acting, and feeling." William A. White speaks of insanity as a "certain type of socially inefficient conduct, a certain degree of socially inefficient conduct that causes trouble in the community." The law which has to do with the mentally disturbed thinks of him only as to whether he can properly care for himself or his property, and whether he can distinguish between right and wrong. This definition, to the psychiatrist, is rather loose in its construction, and is the one that was adopted by courts of law more than three hundred years ago.

There are certain mental conditions which can readily come under the head of constitutional psychopathic states, and they also include the undiagnosed psychoses and are commonly known as the borderline in which a psychosis may develop. Such individuals have a sort of pathologic mentality, which is associated with a defective character and a behavior complex. Under this heading we find the following rather typical states of mind, the possessors of which are usually of the ambulatory or undecided types of individuals. For instance, there is a condition known as "criminalism," in which about 2 per cent of the people are born with criminal tendencies, and which eventually can be determined by a careful analysis as to the *kind* of crime they are likely to commit.

Another division is that called "emotional instability," those who have inadequate personality, —the nomad who wanders aimlessly about, the man with the paranoid personality, who usually constitute the great majority of nuisances. Some one has referred to them as the "persons from

Porlock," who may wander in with a business project, take up one's time with visionary schemes, and who obstruct the by-paths in business, either professional or industrial. This man comes in, monopolizes an hour of time, leaves the impression that he is a common, every-day bore, and, after leaving his victim almost prostrate, he goes on to someone equally unsuspecting. These are among the milder forms of paranoid personality; they can wreck a man's happiness, disturb his entire day, but the "person from Porlock" goes out pleased with himself and does not know the trail of disaster or disdain which he leaves behind him.

Then, too, we have the pathological liar, who can with the utmost plausibility present a plan or a scheme or a line of gossip that will temporarily suspend all business operations until he is finally discovered and kicked upstairs or downstairs. Not uncommonly is this list of constitutional psychopathic states either led by or trailed by the sexual pervert, and of this we may speak later, or not at all. None of these psychopathic persons can be termed as suffering from a typical psychosis, and if by any chance they are confined and deprived of their liberty they are classified as either not insane or undiagnosed. They are simply the pests of the world, and they can lay the foundation for more discomfort and more unhappiness than it is possible for the one who is actually insane to do.

In order not to follow the definite classification which has been adopted by the American Medico-Psychological Association, and which has been accepted for use in the War Department under the direction of the Office of the Surgeon-General, I have taken the liberty to transpose the order of their presentation:

First and properly among the types to be considered are the psychoses with somatic diseases, and under this heading come:

- a. Delirium with infectious diseases; i. e., encephalitis or streptococci.
- b. Post-infectious psychoses—influenza, gastro-intestinal.
- c. Exhaustion delirium.
- d. Diseases of unknown origin.
- e. Diseases of the ductless glands—diabetes.
- f. Cardiorenal disease—uremic and myocardial.
- g. Cancer—toxic forms.
- h. Other diseases or conditions (to be specified).

Under this first classification we must keep in mind the general condition of the individual as to what part of his nervous system is affected—whether it is the cerebrospinal system, the autonomic nervous system, which is literally the independent nervous system allied to the nervous mechanism controlling involuntary muscles and glandular structures; and the vegetative nervous system, the part of the nervous system controlling the visceral functions. Both of these systems just recorded are made up largely from the sympathetic nervous system.

The second division, "a" (delirium with infectious diseases), includes all types of infections that are generally accepted and demonstrable; "b" (postinfectious psychoses) includes the various forms of encephalitis from infection of either known or unknown type.

Third is alcoholic psychosis:

- a. Pathologic intoxication.
- b. Delirium tremens.
- c. Acute hallucinosis.
- d. Korsakow's psychosis.
- e. Chronic paranoid type.
- f. Other types, acute or chronic.

Division "a" (pathologic intoxication) includes certain individuals who, under unexpected conditions have taken more alcohol than they can readily contain. They exhibit extreme anger, violence, despondency, suicide or destructive acts or a shamelessness that has no reserve.

The second division, "b" (delirium tremens), are those who are chronic users of liquor and during their drinking attacks not infrequently abstain from food, hence the activity and violence of their intoxication. They are actually poisoned because physically reduced by the lack of food. They may become the acute or chronic cases, and not infrequently they come quickly to a fatal end. And "f" includes the chronic alcoholic. This is continued over long periods of time and is associated with a bad heredity, in which some member of the family has been a chronic drunkard before him. They have mental deterioration which slowly progresses. They are indifferent, forgetful, neglectful, and irritable. They sometimes have physical symptoms, such as a partial paralysis, a lesion of the optic nerve and retina, and they become ultimately demented. "C" (acute hallucinosis) is a condition of acute hallucinosis in which there are delusions of persecution, hallucinations of various types which come on usually abruptly, but associated with an antecedent alcoholic history. They slowly recover in the majority of instances.

"D," Korsakow's psychosis, is a lack of impressionability, a loss of memory for recent events together with a fabrication that is characteristic, and commonly these people have a polyneuritis, and not infrequently become demented and their pathology is well marked. They have cerebral hemorrhages; they do not recover well, although some of them may approach the normal, but they commonly suffer from a gradual mental reduction.

"E" (the chronic paranoid type) is characterized by delusions of jealousy in which false charges are made, but the reasons given are not of the sort to carry conviction and may be entirely absurd. Some trivial incident may be mentioned as proof of infidelity. Hallucinations occur and fortify the delusional state. These are the people who suffer from family embarrassments, separations, divorces, and ill treatment. Then there are certain alcoholics who come under "f," in whom there is an apparent paresis resembling the paresis of syphilis, and doubtless the two in some cases may be associated. We must be on our guard against the true form of paresis and the pseudoparesis which accompanies alcoholism. In the first case recovery is not likely, while in the alcoholic they may recover.

The third division is comprised of the psychoses due to drugs and other exogenous toxins:

- a. Morphine, cocaine, bromides, chloral, etc., alone or combined (to be specified).
- b. Metals, as lead, arsenic, etc. (to be specified).
- c. Gases (to be specified).
- d. Other exogenous toxins (to be specified).

These need only to be mentioned by way of explanation.

Fourth group: general paresis, known to the lay people as "paresis" and known also in medicine under the name of "dementia paralytica." General paresis is characterized by marked mental and physical deterioration and means an organic change in the central nervous system, and it is due in 100 per cent of the cases to lues. The early symptoms are indefinitely defined. Retrospection is an aid to the beginning of the disorder and is responsible for the business indiscretions of a serious sort. The pathological findings are rich in detail. The bones of the skull are unevenly thickened; the dura is attached in spots; the pia tears at points into the brain substance; the whole brain is shrunken with fluid in the free spaces, and gives a cloudy appearance. First evidence often comes as a change of character. A man of respected standing develops ir-



regular habits and goes to any length in the disregard shown for the customs or ethics of society. The ability for application is lost. There is an indifference and an irresponsibility. Important details of work are disregarded; there is a carelessness in dress. Fine manipulations are difficult, and the fingers are awkward. Lapses of memory; the patient becomes indifferent to money, and is disinclined to work; he is full of grand and expansive ideas and often misleads the unsuspecting. There is a disturbance of speech and a tremor which is somewhat typical. Following this is a gradual increase of all the symptoms. Suddenly a convulsive seizure occurs, either like a true apoplexy or is apopleptiform in type. The dementia increases, and the patient finally goes to bed. He occasionally has a remission, but usually progresses so that in the first, second, or third year he dies of his disease.

Fifth group: psychoses of cerebral arteriosclerosis. This is a common form of mental and brain deterioration, and it occurs at any time of life in which arteriosclerosis may attend. Hence it is not infrequently associated with hemorrhage of the brain. It is slow in its onset and may be preceded by syphilis, alcoholism, or a general auto-intoxication. There are a usual hypertrophy of the left ventricle, high blood pressure, and a chronic nephritis. The arterial disease may be limited to the cerebrum, but when associated with kidney or cardiac diseases it is more extensively found as a pathologic condition. It is responsible for much of the forgetfulness, the emotionalism, the irritableness, headaches, dizziness, and deafness, following which there are a gradual dementia, incoherence, and disturbance of the speech centers; but these individuals are able to hold their own personality well.

Group six: cerebral syphilis. This is a vascular type and may invade any part of the nervous system, and it follows the usual course of a cerebral syphilis. Usually a parenchymatous condition follows, which may last from a few months to forty years, and has, in common with arteriosclerosis, practically the same symptoms, except that added to it there are a defective memory and a defective judgment and a failure to recognize these faults. Many special symptoms may arise, —alterations of the pupils, choked discs, vomiting, monoplegias, epilepsy, hemianesthesia. It is usually recognized by laboratory tests. When once its foothold is established, little can be expected in the way of treatment or of permanent improvement.

Related to the psychoses that have just been

mentioned in connection with arteriosclerosis and cerebral syphilis we have the psychoses of Huntington's chorea, which is typified in people over thirty who develop a slow and progressive chorea, and is in no way connected with the ordinary Sydenham's chorea. It is commonly recognized as a family disease and is associated with brain atrophy and arteriosclerosis. The movements of the muscles are irregular and slow, the gait is swaying, and the movements are loose and jerky in type. The early mental changes fix the diagnosis, as there is weakness of memory and judgment. These people go on to helplessness and permanent dementia.

Group seven: psychoses with brain tumors, due to invasion of territory by new tissue formation and with pressure symptoms, added pain, eye symptoms, and paralysis of various forms or typical forms are not infrequently associated with the growth of the brain tumor. The first type is embolism, which occurs suddenly, is accompanied by extreme but transient excitement, the development of a paralysis which may be more or less in evidence, and, if the cerebral insult is sufficient, the mental symptoms are added thereto.

Paralysis agitans is occasionally followed by a mental deterioration which is terminal in its type.

Tuberculous and other forms of meningitis are self-explanatory, as is the multiple sclerosis with its varied symptom groups—nystagmus, scanning speech, ataxia, increased reflexes, optic atrophy with its limited involvement of the mentality, and sensation. It is gradually progressive with remissions which last from six months to ten years or longer.

Tabes, or locomotor ataxia, is another one of the 100 per cent luetic diseases which extends into the brain and develops into what we call a "taboparesis," and follows the usual course.

Another division which is interesting, but not frequent in this part of the country, is psychosis with pellagra, in which the characteristic symptoms are disturbances and disorders of metabolism, food errors, and the development of peculiar skin disorders, and with a rather typical deterioration mentally sometimes a definite acute dementia.

Traumatic psychoses may follow an injury in which the brain is definitely injured either with concussion, with typical cell alterations or with definite injury to brain substance found in those who are mentally predisposed in their tendencies to mental disorder, which is of the demented type.

Dementia precox (development) is perhaps the mental disorder that brings more young people under institutional care than any other, and during the late war the number of cases of dementia precox that slipped by the examiner and experienced the strain and confusion of an unnatural life, and which followed the usual course, was almost unbelievable. The simple type which is found among young people is probably due to an endogenous toxic effect, possibly due to the disfunctioning of a sex gland or some other ductless gland; but, in the main, there is a psychogenic beginning with a loss of balance in the mental metabolism.

"B," or the hebephrenic type, is more frequent, and its beginning is usually unrecognized, and the dementia may show simply a lack of ability to think and to do what might be normally expected. From this it goes on to a self-centered attitude with marked carelessness, restlessness, irresponsibility, sexual disorders, hallucinations, a general shiftlessness, and a deterioration which gradually increases. An Italian writer has used the expression "a stolidity of conduct," which is emphasized by other writers as a dullness of emotion. Some of these people are likeable, agreeable, and pleasant, but they show their retardation and show their mental inefficiency. Of the simple type and of this type a few make substantial progress and may become more or less helpful.

"C," the catatonic type, is manifested by a stiffening of attitude, supported by a negativism and stupor. They show extreme length in resistance to everything and in maintenance of postures which characterize this type.

"D," the paranoid type, may be found among young men or men in middle life. They have delusions, hallucinations, absurdities, and grotesque fancies. It is very difficult to pick out these various forms of dementia precox and classify them readily because one type lapses into another type, and not infrequently the four varieties may be seen in one case.

The manic depressive is a common type of psychosis and is a very easy term to throw into the mental waste-basket because it involves in many cases a fourfold variety in which the mania is the beginning. This may be mild or severe and last a reasonable time with all sorts of flight of ideas, psychomotor excitement and emotional excitement. The ideas may be normal in character, but they are not rounded out; they are shortened and soon lost in what is to follow, hence the term "flight of ideas." This mania, or, in its modified

form, a hypomania, is sometimes characterized by emotional excitement in which the patient is nervous and quick, and perhaps superficially clever. There is increased activity, which is inclined to change direction and thus fail of any reasonable result, or is recognized in many people who have short, sharp periods of excitement, muscular or emotional, in which they sometimes suddenly become apparently normal. It is immaterial whether they have hallucinations or delusions, as they are not usually permanent. This condition gradually lessens in activity, and convalescence may be apparently established and then the case gradually approaches the depressed type. There is difficulty in thinking, and there are psychomotor retardation and emotional depression. The patient sits relaxed and apathetic with folded hands and head bowed. It is hard for him to think and difficult to act. The people do not realize that a tired, depressed brain cannot perform its function, and, I am sorry to say, very few physicians recognize it either. This form of depression should be carefully attended, and protected from attempts at suicide and from the influence of their too ardent and impulsive friends. Finally the depression clears away, and an apparently normal condition returns.

Type "c" is that of stupor and stuporous states in manic depressive psychosis and is very common. These people suffer from all sorts of bodily discomforts; they lose in weight; they are utterly befogged mentally; and in spite of their occasional lapses into the depressive form they occasionally get very much better, but they show a sign of mental reduction.

Then there is the mixed type, in which these three varieties are so irregularly presented that there is difficulty in analysis.

The circular type is the old form which was recognized very early, and it was supposed that we all lived a circular life, as it might be said, happy, depressed, dull, or stupid. We go round the circle, sometimes a large one, and we arrive at the threshold of sanity, and there we stay for a time; we either go up to the top of the circle and become exalted, or we go to the bottom of the circle and become depressed. And so these people who are of the manic depressive psychosis type go through life.

Paranoia and paranoic conditions: Paranoia is a common mental disorder. It is an inherited defect characterized by fixed delusions of suspicion and persecution. It may develop in young life, even in childhood, or it may be delayed in its manifestations until adolescence; and yet no



pathology has been discovered which is the basis of a paranoia. Further than this the patient's general conduct may be near normal and the mental condition go without evidence of fault when conversation does not touch the diagnostic delusions. Some paranoiacs may be sensitive, distrustful, and inclined to hold aloof even from friends; and some of the paranoiacs may be able to hold in check their suspicious ideas and appear normal, even plausible, frequently misleading; but eventually the paranoid state comes out. Most of these people are characterized by crooked thinking and inability to reason logically, or to think straight on certain subjects, hence they are not infrequently shrewd, sharp, and cunning. As a matter of fact, however, he is a poor man to get along with; he is a poor business associate; a poor employer or employee; a poor husband and a poor father. The ego in these individuals so dominates them that they care more for its promptings than for the commendations of the people. They are widely distributed; they frequently head reform movements, but most frequently they live a thorn in the flesh of their associates; they are quibblers, and they are always found in the minority, hence some of our legislative and congressional disputes. These people are commonly in court, in all sorts of fool litigation. They are recognized as universal pests, and very few of them get better. Occasionally one gets to a point where he is tolerable, but the majority of them remain chronic, whether inside or outside of an institution for psychotics. They are all more or less dangerous, and they frequently commit violent assaults.

**Involuntional melancholia:** This type of melancholia differs from the ordinary depressed forms of psychosis that we meet under different headings, in that it occurs during a period of involution, tissue change, arterial presenile state; consequently it may begin anywhere between the fourth and fifth decades, and the mental symptoms are those of depression, anxiety, and despair, suppressed agitation or an increased psychomotor activity and muscular tension. It is commonly looked on as a chronic disorder, although perhaps one-third of the cases improve or even recover. In this form of depression, as well as in other forms, the persons grow depressed and are the ones who attempt to escape imaginary or possible injury because their fear of injury to themselves by some unexpected assault tends to make them escape their living environment. They not infrequently commit suicide, due to a compelling thought, and yet they

have sufficiently responsive mentality to carry out their suicidal acts. Then, too, they terminate in many cases by a persistent dementia.

**Senile psychosis:** This has been referred to elsewhere under the head of cerebral arteriodegeneration, but it occurs frequently in people who have no demonstrable lesion, but most of them are associated with hereditary tendencies slowly developing organic diseases. They are the terminal types which occur from exhaustive and infectious disorders, and they finally become what we recognize as organic cases of dementia. In nearly every case we may expect to find a general atrophy of the brain and nervous system. The shrinking of the brain substance is very noticeable at autopsy, and the depression of the convolutions is marked, and the intermeningeal spaces are commonly filled with fluid of a cloudy nature. Many of these people have heart and kidney diseases with high blood pressure; some of them have high pulse pressure; some of them are cheerful and childish, while others are disagreeable, unpleasant, excitable and unruly, extremely untidy in their habits, and difficult to care for except in a suitable institution.

It is impossible to complete this classification without greatly lengthening the paper, which is already too long, or to take up those special psychoneuroses which are commonly termed hysterical, psychasthenic, and neurasthenic, as well as those which are supposed to occur at the climacterium. As a matter of fact, those psychic disorders which occur at this epoch in life are no different from forms that have already been described. Neither can we take up the psychoses with mental deficiency or those with constitutional psychopathic inferiority, nor the epileptic psychoses, particularly those forms in which the mental attack replaces the convulsive seizure; nor need we take up the undiagnosed psychoses. Altogether, these classifications of mental disorders number more than twenty. Yet it seems that there may be a much shorter classification, but much broader in its scope. The following classification is taken from Bianchi, an Italian psychiatrist:

1. Congenital psychoses, arrests and deviations of psychic development, which include phrenasthesia, psychopathia sexualis.

2. Simple acute psychoses, mania, melancholia, amentia, and sensory psychoses.

3. Chronic psychoses, primary and consecutive, paranoia, periodic psychoses, states of dementia.

4. Paralytic psychoses, general paresis, syph-

ilitic dementia, alcoholic dementia and encephalitic dementia.

5. Psychoses from neuroses, epileptic, hysterical, neurasthenic, choreic psychoses.

6. Toxic psychoses, pellagra, alcohol, drugs, acute gastro-enteric.

7. Infective psychoses, post-influenzal, enteric, syphilitic, and acute delirium.

Still another scheme is presented in the book, "Insanity and Law," by Dr. H. Douglas Singer and Dr. William O. Krohn, in which they present figures derived from 21,742 first admissions to 72 state hospitals during the year 1920. From this classification should be deducted 435 psychoneuroses, and 730 other cases without psychoses. This leaves a total of 20,577 patients with psychoses as follows:

	No. of Cases	
I. Psychoses with structural damage to the brain:		
(1) Traumatic .....	48	
(2) Senile .....	2,550	
(3) Arteriosclerosis .....	1,350	
(4) General Paralysis.....	2,219	
(5) Cerebral Syphilis.....	235	
(6) (7) and (8) Other brain and nervous diseases.....	209	
(14) Involutional Melancholia	683	7,294
II. Psychoses with toxic-infectious conditions:		
(9) Alcoholism .....	476	
(10) Drugs and other exogenous poisons .....	103	
(12) Somatic diseases including (11) pellagra.....	741	1,320
III. Psychoses without discovered damage to the brain:		
(13) Manic-depressive reactions .....	3,366	
(15) Dementia Precox.....	5,676	
(16) Paranoia and paranoid conditions .....	594	
(17) Epileptic reactions.....	560	10,196
IV. Psychoses with constitutional deficiencies:		
(19) Psychopathic personalities .....	492	
(20) Mental deficiency .....	680	1,172
V. Admissions without psychosis:		
(18) Psychoneuroses .....	435	
(21) Without psychosis .....	730	
VI. Unclassified cases .....	595	595
Total.....	20,577	

It is to be noted in this classification that the largest number of these 20,577 cases come under

the heading III, psychoses without discovered damage to the brain. Next in order, of which there are 7,294, come psychoses with structural damage to the brain, under heading I. These classifications give one a brief summary and survey of the most frequently found psychoses.

#### DISCUSSION

DR. LAWSON G. LOWREY (Minneapolis): Dr. Jones has done something I did not think was possible. He has taken the classification of the American Psychiatric Association and, by re-arrangement, made it useful in practice. I happen to have a great deal of interest in this whole matter of the classification of the psychoses because I worked with Dr. Southard when he was particularly interested in the problem of classification. His kind of classification has been greatly misjudged I think; it still remains the outstanding work in that field within the last dozen years. There has always been some sort of classification of mental diseases, beginning with the ancient three types of mania, melancholia, and dementia. All sorts of other classifications have sprung up. The ideal classification would be etiological; this is so far impossible. The classification which I have found most feasible for myself in thinking about actual cases and in teaching is the following:

1. Syphilopsychoses.
2. Hypophrenoses.
3. Pharmacopsychoses.
4. Epileptoses.
5. Somatopsychoses.
6. Encephalopsychoses.
7. Geriopsychoses.
8. Schizophrenoses.
9. Cyclothymoses.
10. Paranoidopsychoses.
11. Psychoneuroses.
12. Psychopathoses.

This is a practical scheme for use in every-day thinking. Once you have got your data together, you can say in which group, if any, this patient belongs. Some of them rule themselves out. This is all very well from the standpoint of diagnosis and certain forms of treatment. Unfortunately, it does not tell the whole story of what is going on in the patient. For the most part this diagnostic scheme was originally based on outcome, and not a matter of preliminary manifestations.

The primary relationships underlying the psychopathic reactions are apparently to be found in the lack of satisfactory assimilation of various partial trends, lying usually in the sex field.

This can even be proved to the skeptic who says there is nothing in Freud. You can prove it to him out of the actual hallucinations and delusions that the patients present. To meet that end of the problem Kempf has produced a classification which is not a workable one but is good, based on certain types of mental mechanisms involved in the production of mental disease. He recognizes different mechanisms: suppression, repression, compensation, regression and dissociation, which may be benign or pernicious in type. This helps in understanding the



psychological features: it is useful in only certain ones of the 12 groups given before.

So far as the last five of the twelve groups are concerned, I myself have no ideas about their etiology. I am certain that there are at least three types to be found there: 1. toxic; 2. organic; and 3. mechanistic or psychogenetic: but their precise relationships remain unclear. It is in these groups of uncertain etiology that we must preserve an open mind and carefully investigate any theory of causation which may be presented.

DR. J. C. MICHAEL (Minneapolis): A definition of mental diseases which makes reference only to the brain should be regarded inadequate in its scope, for to-day we have come to look upon diseases with mental symptoms as being diseases of more than the mind or brain or even the nervous system alone. We know that normal mental makeup represents integration of the functions of the entire bodily systems, and in the study of abnormal states we must consequently investigate beyond the nervous system.

Dr. Jones is to be congratulated for having covered this large subject in so short a time. It constitutes really an heroic effort. This classification of Dr. Southard's which Dr. Lowrey has put on the board is not entirely adequate in that such terms as, for instance, "pharmacopsychosis," "somatopsychosis," etc., do not classify with sufficient precision. They do not express why one man with a certain amount of intoxication develops a psychosis, and another affected under similar circumstances does not.

For practical consideration, let us recall the fact that about one-half of all psychoses have an organic factor in their production, as far as we are able to tell by examination methods. The other half comprise the functional group. The first task that presents itself is in what group the particular case at hand should be placed. Having found an organic factor, the case is then approached by further neurological or other physical examinations. If the case belongs to the so-called functional groups, then we must take into consideration the patient's native endowments, his heredity; we must inquire into his past personal life from childhood on. We must know something of the history of his intellectual activity,—how he receives impressions, how he retains them; something about the security of his sense of reality and his capacity in judgement. We must know how he responds to his somatic demands; in other words, how he gets along with himself. We must also have a life history of his imperative drive in making a place for himself with his fellow-men. We should know his instinctive and family life.

After this procedure we may feel, with a fair degree of reasonable accuracy, able to classify the psychosis and give a prognosis worthy of some respect. We have in this large group of so-called functional cases to distinguish particularly the congen-

itally retarded or feeble-minded; the fairly defined types of psychopathic states based on developmental defects and distinguishable from the benign and recoverable psychoses characterized by mood changes and also from the slowly, sometimes rapidly progressively deteriorating types of mental disorder.

Let us keep in mind that it is silly procedure to waste time trying to fit a mental disorder into a mechanical classification. This one sees occasionally attempted in hospital staff discussions. And let us try to state our diagnoses so that they convey something intelligible about the etiology, nature, and prognosis, something that has more than mere academic significance.

DR. JONES (closing): I think you have all been sufficiently confused with the classification which I have presented, and your confusion has been added to by Dr. Lowrey's discussion and the classification which he presented, as well as the quota Dr. Michael has added. I did not add the classification that was drawn out by Dr. Southard because there were too many big words in it, and the classification does not appeal as a practical, working one. Neither could I accept the etiological classification.

This paper was not prepared for such men as Dr. Hamilton, Dr. Michael, and Dr. Lowrey, but was presented with the hope that it might help the general practitioner to understand the problems in psychiatry better; that it might explain to him some of our difficulties in differentiating psychiatric problems. It also gives us all an opportunity to study a little more of the biological and hereditary factors in each case, as well as the much-neglected study of evolution and the environment of the individual; for, as a matter of fact, the diagnosis in these cases is based upon the historic findings.

However, if you want something in the way of a classification I would refer you to Dr. Albert C. Buckley's book, "The Basis of Psychiatry," which has been very helpful to me in compiling this paper. Dr. Buckley discusses twenty-five different kinds of insanity, and yet he makes the whole book an interesting one because it is very carefully and very learnedly written. It is quite true that the somatic side of the individual must be very carefully considered,—that there are many kinds of what are supposed to be mental disorders that are purely toxic-infectious conditions; and the case that I mentioned, that of a young woman who was, apparently, violently insane and required three or four people to hold her on the bed, is an illustration of this. The attending physician had been using quantities of morphine and hyoscine to keep her quiet, and he seemed very much surprised when, in place of these narcotics and sedatives, I suggested that he give her a big dose of calomel and put her in a hot pack. In the course of six or eight hours she was back to a normal mental state. Consequently, we all must learn to think of other than the mental condition and inquire into the history or heredity, environment, and disease.

## THE DIAGNOSIS OF PULMONARY TUBERCULOSIS\*

By J. D. ADAMSON, M.D.

Assistant Professor of Internal Medicine, University of Manitoba, and Assistant Physician, Winnipeg General Hospital  
WINNIPEG, MANITOBA

I feel honored at being asked to address this Association, but I also feel a good deal of diffidence in speaking upon tuberculosis in a country where it is better understood by the profession than in any other. I have nothing new to present to you in the diagnosis of pulmonary tuberculosis in adults, and I shall convey only certain personal impressions, on various diagnostic procedures, gathered in the practice of general internal medicine with a predilection for tuberculosis.

The aim of this paper is to do some housecleaning, to brush up some of the essential articles of our diagnostic equipment and to relegate to the museum some of its obsolete furniture. We all acquire an affection for old things, particularly for old beliefs. This instinctive conservatism should not entirely stifle destructive criticism, even though the critic places himself in danger of being called an iconoclast.

*The diagnosis* of adult pulmonary tuberculosis is not essentially difficult. If it appears so, the responsibility lies with the literature on the subject. In it the essentials for diagnosis have been submerged in a sea of non-essentials. The medical journals during the past few years, have been inundated with descriptions of new and phantastic signs and minute complicated diagnostic procedures, all of which are alleged to indicate pulmonary tuberculosis or to aid in its detection. In this maze of detail, one is in danger of losing his bearings. Much of the doubt and confusion in the diagnosis of tuberculosis is due to the multiplicity and intricacy of these supposed signs and symptoms. For the specialist it may be diverting and even profitable to multiply details, and he may derive a pleasure comparable to that of a stamp collector from accumulating and classifying a knowledge of obscure items. For the practitioner in a wider field it is fatal to accuracy in diagnosis. He may find himself like some of our students, reading tuberculosis into every history, discovering its incipient signs in every chest, seeing its sinister marks in every film, and doubting its existence in well-developed cases because of the absence of some of the many signs. If the gen-

eral practitioner or the internist selects the fundamental and solid elements of diagnosis and discards all the ornate adjuncts he will be doing as much as his time allows, and also accomplishing most for his patients. In this age few of us can aspire to a detailed knowledge of all the branches of medicine. There is no reason, however, why we should not have a good working idea of the important facts in connection with each branch. In tuberculosis these important facts are not very numerous.

*That the history* is one of the most important aids to diagnosis of any sort, is a fact so well recognized that its repetition is tiresome; that the history alone can commonly make or break the diagnosis in pulmonary tuberculosis is a claim which is often advanced, but which is quite unjustified. Histories are essentially inaccurate and defective. They represent at best the imperfect and faulty recollections of the patient colored by the personal bias of the recorder, and selected in conformity with his eccentricities. A patient who is afraid of tuberculosis and who knows something of its symptoms will, in his attempt to convince himself that he is free of disease, so disguise and even deny his symptoms that his history may be unrecognizable as that of tuberculosis. For him a morning cough is simply a "cigarette cough" or "bringing a little mucus from the throat." Loss of weight is "the usual thing for this time of year," etc. In the case of those patients who might expect some compensation or have some other advantage to be gained if declared tuberculous, the situation is reversed. In these days of compensations, pensions, and insurance such cases are common. No matter how honest they may be they cannot prevent their natural subconscious tendency. Dr. A. F. Miller, of Kentville, Nova Scotia, recently read a paper in which he showed that in a series of such patients, suggestive histories were more common among the non-tuberculous than among the tuberculous. Besides the prejudice of the patient, the historian always has his own particular inclination and, from the appearance of the patient alone, frequently has a preconceived idea as to what the diagnosis should be. This is bound to influence the history and give it one more possibility of inaccuracy.

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.



There is no particular virtue in a long and minutely detailed history. This form of history has become particularly fashionable in cases suspected of being tuberculous, because in that disease, the actual fundamental cause being unknown, every possible environmental circumstance has been suspected of being contributory. Some of these factors can be definitely discarded, as they have no influence whatever on the production of clinical tuberculosis. They are, therefore, superfluous in a history. The so-called "bad habits" have been much maligned in this respect. One sees fewer people with a history of alcoholism in a sanatorium than one would in a prayer meeting, and Webb's figures on the influence of smoking in the American Army would rather prove that that habit protected against tuberculosis than the contrary. The roué who spends his nights and days in riotous living seems no more prone to tuberculosis than the parson. While the wages of sin may be death, we cannot make tuberculosis the executioner. Details as to the amount of work, recreation, and sleep set down in a history do not contribute to the material necessary for making a diagnosis. If overwork and overplay really predisposed one to this disease, America would have the highest death rate in the world, and the rate would be going up, and not down. While there are a great many other meaningless features commonly set down in the history of one suspected of tuberculosis, there are certain facts that should be diligently inquired for and carefully recorded. They should be dug for in the spirit, but not the manner, of a lawyer cross-examining a witness. The most important of these are history of other tuberculous disease, history of purulent expectoration, history of pleurisy with effusion, and history of hæmoptysis. These will be considered in detail under symptoms.

*The symptoms* as they are actually known to exist from personal observation, and not as they are described by the patient, are of the greatest assistance in making a diagnosis. Here again there is unnecessary confusion between those symptoms that are significant and those that are meaningless. The most suggestive of all symptoms are the following: hæmoptysis, pleurisy with effusion, and purulent expectoration. The presence of any of these places upon the physician the onus of proving their non-tuberculous origin. Though their presence frequently indicates other disease there are not many cases of tuberculosis which have not, at some time, had one of this triad associated. By hæmoptysis is

not meant occasional streaks of blood or small clots. These are decidedly more common in septic lung conditions. To deserve the name *hæmoptysis* there should be at least a dram of blood, and it should be followed by traces in the sputum for some hours or days. If this has taken place in the absence of an acute pneumonia, bronchiectasis, infarct, or a gross heart lesion, especially mitral stenosis, the betting is at least twenty to one on tuberculosis. There are occasionally cases in which there can be found no definite explanation for repeated hæmoptysis. These should be treated as tuberculous till the hæmorrhages have stopped and the general health of the patient is good. The so-called idiopathic pleurisy with effusion should be regarded as tuberculous. These pleurises must frequently be declared tuberculous because that is the safest guess. Negative guinea-pig inoculation tests do not prove an effusion non-tuberculous. The condition of the underlying or opposite lung may give a clue, but as long as there is fluid in a pleural cavity the condition of the underlying lungs as regards tuberculosis is frequently enigmatic, and a definite opinion must be postponed.

Purulent expectoration, when present, always means some inflammatory condition in the chest. The great difficulty, of course, is to be sure that the purulent material is "ex pectore" and not from the upper respiratory passages. In either event there may or may not be cough. The description of the manner of its production may indicate its origin. The fact that it does come from the chest is often demonstrated during the coughing stage of the chest examination. Occasionally the upper respiratory spaces must be thoroughly examined to eliminate them as the source.

Besides these three symptoms that practically mean tuberculosis till proved otherwise, there are actually hundreds of symptoms attributed to pulmonary tuberculosis. Cough is commonly the symptom that attracts one's attention to the chest, but it is safe to say that most coughs are not tuberculous in origin and that the more troublesome a cough is the less likely is it to be tuberculous. The persistent harassing paroxysmal cough points away from tuberculosis. The quiet, inobtrusive occasional cough which the patients frequently describe as "clearing of the throat" is suggestive. Many far-advanced cases deny cough entirely. There is usually less coughing in a tuberculosis sanatorium than there is in a general hospital. The tuberculous patient does his coughing the first thing in the morning, as a

rule, and makes very little fuss about it. For some unaccountable reason night sweats have for years been considered to be a common symptom in early tuberculosis. How this came about is hard to understand. The propagation of this belief from generation to generation illustrates well our propensity to accept and perpetuate the beliefs of our teachers without question. Night sweats do, of course, take place in tuberculosis, but only when the disease has progressed to the stage when the neighbors have long since made a diagnosis.

Libraries have been written, and doubtless many more will be written, upon the physical examination of the chest suspected of harboring a tuberculous lesion. The psalmist's lament, that "Of making many books there is no end and much study is a weariness of the flesh," is particularly applicable here. One may also say that "He that increaseth knowledge increaseth sorrow," because so much of the material on this subject serves only to confound and adds nothing substantial to our diagnostic equipment. In spite of the striking development in the general knowledge and treatment of pulmonary tuberculosis there has been in the past hundred years very little of real value added to methods of chest examination. Much of the confusion arising out of physical examination is attributable to an imperfect knowledge of normal findings, and it is true here, as in many other branches of diagnosis, that the more physiology one knows, the less pathology he sees. Like faces, chests have their individuality and in many respects may depart widely from the average normal and still not be pathological. Normal breath sounds and percussion notes are as various in pitch and timbre as are normal voices. If we remember this we shall not be so readily led astray by some "Will-o'-the-Wisp" in the shape of a minute departure from the ordinary.

Inspection, palpation, and mensuration are of no real value in making a diagnosis. In advanced disease there are certain marked changes found by these methods, and they may help to estimate the extent of the disease, but in early or incipient cases where diagnosis is more difficult any material gathered by these measures must be strongly supported by more convincing proofs. Some observers report slight, localized limitations in movements as the result of a very small amount of disease. These changes, if they exist, are too fine and too indefinite to be of any value to the majority of us. The total amount of expansion possible determined by mensuration depends on

so many extrinsic factors that it is practically useless for diagnostic purposes. Many perfectly healthy athletes cannot expand more than two inches, and some individuals with far-advanced disease can do as much as five inches.

Percussion is an art which has suffered much from the profusion and confusion of the methods advocated and the benefits claimed by its too ardent supporters. Its execution is full of difficulties, and there is no method of physical examination in which imagination may play so large a part. (If slight dulness is suspected at one apex it is a good practice to try to convince one's self that it is at the opposite side. It is surprising how frequently this may be done.) There are, undoubtedly, individuals whose natural faculties allow them to become surprisingly adept at percussion. This proficiency is not for the ordinary man, and, fortunately, accurate diagnosis may be made without it. Careful percussion with a light staccato touch should certainly be made in all chest cases. If the changes are not absolutely definite and are not corroborated by other methods they should be ignored. In looking for tuberculosis the shoulder straps should be carefully defined and measured, and the basal excursion of the lung should be estimated. These are very simple procedures and frequently supply valuable information.

So far I seem to have done nothing but dispense doubt and deal destruction to time-honored procedures. This course might with justice be pursued for some distance in considering auscultation. Here, however, we have come upon a veritable oasis, and a short pause will prove refreshing. In "post-tussic crepitations" we have by far the most constant and convincing of all the physical signs of pulmonary tuberculosis and, indeed, one that is less fallable than all the others together. Though this fact is generally recognized it is surprising to find how frequently one reads of and sees chest examinations in which no attempt is made to elicit this all-important sign. This is in spite of the great simplicity of the procedure and the fact that its importance has been recognized for years. The patient is merely required to "breath out, cough, and breath in." The typical crepitations come immediately after the cough. If this type of crepitation is found persistently localized in the upper halves of the lung, one may be as sure of a diagnosis of pulmonary tuberculosis as clinical methods can make him. When the sign is really there it is absolutely convincing, and there can be no equivocation about it. No room is left for doubt or imagination.



About 75 per cent of tuberculous chests present no convincing diagnostic physical sign till this one is sought for. Slight flattening, slight limitation of movement, slight dullness, slight prolongation of expiration may all be due to the imagination of the examiner or the normal anatomy of the patient. Post-tussic crepitations cannot be due to either of these.

There are only two adventitious sounds that might be confused with post-tussic crepitations. One of these is creps distributed throughout inspiration after cough. These are much later and much more irregular in size and in their distribution in the respiratory cycle than the typical crepitations and are not hard to differentiate. They are found in septic conditions. The second condition that may confuse is the sounds due to deglutition. Many patients, especially nervous ones, have a habit of swallowing after each cough. This produces a sound surprisingly like post-tussic creps, especially in the right apex. This source of error is easily recognized and soon corrected.

To be sure, there are cases in which this sign by its presence or absence may mislead one. Dr. J. S. Pritchard has recently described tumor cases where this type of crepitation was found. This sort of case, luckily, is exceedingly rare except in the practice of a specialist in a large center. Though the presence of post-tussic creps is almost enough upon which to make a diagnosis, their absence is not quite so valuable as a proof of the non-existence of active tuberculosis. There is a small percentage of tuberculous cases which show no physical signs whatever, and in these we shall always be dependent on symptoms and *x*-ray findings.

In estimating the amount of activity post-tussic crepitations are not of any great value. These signs often persist after all evidence of activity has disappeared, and often the disease seems almost cured. Even after *x*-ray signs have practically cleared up, post-tussic creps may persist, and in the diagnosis of this type of case physical examination has the advantage over *x*-ray findings.

When we have dealt with this sign (post-tussic crepitations) we have passed through our oasis and again come on ground that is barren of useful products. The other signs to be elicited by auscultation are individually of little help in diagnosis. Slight changes in breath sounds, especially prolongation of expiration, should be entirely ignored if unaccompanied by definite dullness or crepitations. In normal individuals the

variation in this sign is extraordinary, and some people present, in the right apex, breath sounds that may almost be considered as bronchovesicular. Conversely, the absence of change in character of the respiratory murmur does not disprove the presence of fairly gross disease.

*The application of radiography* to the study of lung tuberculosis has unquestionably added more to the clinical knowledge of tuberculosis than any other single factor. In diagnosis in particular it is invaluable. The question as to whether it is more valuable than history and physical examination has been debated *ad nauseam* with no particular benefit to anyone. In the actual detection of tuberculous lesions, especially when they are fresh, there is no doubt that the *x*-ray alone excels other means. It has frequently been shown that there is a small percentage of tuberculous chests which will give diagnostic signs by no other methods. Furthermore radiography defines the area involved more accurately than could possibly be done by physical examination. Clinicians have been very tardy in recognizing this unquestionable advantage enjoyed by radiography. They appear to fear that such an admission would relegate the art of history taking and physical examination to oblivion. There are two good reasons why no such fear can possibly be realized. The first is that the detection and delimitation of a tuberculous lesion cannot be considered a complete clinical diagnosis. The chief element in the diagnosis, and the only one that really presents difficulty, as a rule, is the estimation of activity. This estimation cannot be satisfactorily made by the radiologists, though most of them will hazard a guess. This all-important question can be answered only by painstaking clinical study. Another reason why the older methods must always occupy a prominent part in the procedure of lung examination is that there are certain cases of definite pulmonary tuberculosis which are healing, but are still in the stage requiring careful treatment, which show no unequivocal radiographic signs. These cases are not many and do not outnumber those in which the *x*-ray signs overbalance physical signs. They do, however, give an additional reason against implicit faith in *x*-ray alone. In the actual diagnosis and sizing up of a case clinical and *x*-ray methods are inseparably interwoven, and in reality *x*-ray is simply refined inspection. Comparison of their respective merits is, therefore, futile. The two procedures should be carried out together and, if possible, by one individual. This means that clinicians who do

much chest work should make themselves familiar with the essential points in the interpretation of chest films. It is inexcusable and pitiful to see clinicians waiting for radiographic pronouncements with blind faith and allowing these oracular dictations to decide the course to be followed in the care of the patient. This implicit faith in radiographic findings will frequently lead to under-diagnosis if the plates are bad ones and to over-diagnosis if the plates are up to average.

The danger of over-diagnosis on radiographic findings is real and is the chief objection to this most powerful diagnostic method. In their unbridled enthusiasm to find incipient tuberculosis, many observers have attached unjustified importance to certain radiographic changes. Peribronchial infiltration and hilum changes are conditions most frequently over-interpreted. Though changes of this sort frequently have some connection with tuberculous infection, they should not be considered as indicative of clinical tuberculosis unless there is strong confirmatory evidence from the clinical side. A group of cases that is frequently adversely affected by this tendency is that one which we all know too well and whose common symptoms are the following: general weakness, palpitation, emotionalism, undue sweating, inability to concentrate, etc. *ad infinitum*. These unfortunates are usually diagnosed and treated according to the idiosyncrasy of their medical attendant. They are labeled neurosis, psychoneurosis, or neurasthenia by the neurologist; effort syndrome or cardiovascular asthenia by the cardiologist; focal infection or hyperthyroidism by the surgeon; and, if a chest film discloses some peribronchial infiltration, they are liable to be called incipient tuberculosis by the radiologist. For most of this type this is unfortunate because it merely confirms their most horrible doubts and adds another fearful object to an outlook already too gloomy. An unjustified diagnosis of tuberculosis in a case of this sort cannot be condoned by the excuse that the treatment predicated is good for the condition because, as a rule, these patients do poorly in sanatoria.

Of the laboratory aids to diagnosis little need be said. The finding of tubercle bacilli in the

sputum, of course, is as near to being pathognomonic as anything can be, but does not help a great deal in estimating activity. The tuberculin test in adults is of practically no value unless it is definitely negative, and even this may be found in far-advanced active disease. The complement fixation and the Căulfield's inhibitive tests may be of some value in the hands of those few who understand their technic and interpretations. Their value to the ordinary practitioner is not sufficient to justify general use, and indeed they are less now than a few years ago. Vital capacity readings, undoubtedly, have some value in prognosis when used over a period in known cases of tuberculosis. In the diagnosis of difficult cases their findings do not contribute much.

To sum up: What are the essentials to be considered in an effort to establish a diagnosis of pulmonary tuberculosis?

1. Consideration of history and symptoms may disclose pleurisy, purulent expectoration, or hæmoptysis.

2. Physical examination will, in a large percentage of active cases, disclose post-tussic crepitations, probably localized in the upper part of one or both lobes.

3. X-ray examination will show in practically all cases of clinically active pulmonary tuberculosis circumscribed, localized, parenchymatous shadows near the periphery in the upper half of one or both lungs.

4. Sputum examination may show tubercle bacilli.

A diagnosis must be made on the presence of any two of these. A diagnosis cannot be made in the absence of all of them.

Before leaving I must thank you again for your kindness and hospitality, and I wish to reciprocate by inviting any of your members to our annual Provincial Medical Meeting in Manitoba. We can offer you three things in particular:

1. A good program. We shall have several first-class speakers from the Old Country, among whom are Sir John Thompson Walker and Sir Jenner Verrall.

2. We have fifteen golf courses.

3. We can offer some of you a measure (or perhaps even two) of that liberty that you prize so highly.



## RELATIONSHIP OF THE STUDENTS' HEALTH SERVICE OF THE UNIVERSITY TO THE PHYSICIANS OF THE STATE\*

By H. S. DIEHL, M.A., M.D.

Director of the Students' Health Service, University of Minnesota  
MINNEAPOLIS, MINNESOTA

The first university to establish a department to devote itself exclusively to the health supervision and medical care of students was the University of California. This was in 1910. The next year, following a serious epidemic of typhoid fever among the students, the University of Wisconsin employed its first full-time physicians and began to develop an adequate and efficient student health department. Other universities in rapid succession followed these leads, until to-day practically every American college and university provides some sort of medical service for its student body. The service at the University of Minnesota was one of the later ones to be established, but it offers a typical example of what larger American universities are doing in this line.

### PURPOSE OF THE SERVICE

Activities of student health services naturally cover various fields. Every possible attempt is made to prevent the spread of communicable diseases and the development of serious illnesses. Dispensary and infirmary care is provided for students who are ill. Periodic physical examinations of students are made and existing defects pointed out. Employees of university dining halls and cafeterias are examined, and the sanitary conditions of university buildings and swimming pools are supervised.

The part of all this work in which physicians naturally are most interested is that which involves the practice of clinical medicine, therefore discussion in this paper will be limited to that phase of health service activities. In general the medical service provided for university students is not unlike the service provided for soldiers of the army or navy. At the health service dispensary, as at the company sick call, an individual is given treatment for minor illnesses while he continues on duty. To the students' hospital, as to the field hospital, patients with more serious conditions are admitted, and every attempt is made to return them to duty as soon as possible. In case it becomes evident that a student cannot continue his school work, he is cared for until

he can safely be moved but then he is sent home or removed to some other hospital.

### MEDICAL STAFF

The medical staff of the Health Service consists of five physicians who give full time to this work and nine who devote part time to the Health Service and part time to private practice. In this way it is possible to have adequate and high-class service not only in general medicine but also in the various specialties. In the university organization the Health Service is a department entirely independent of the medical school, but, between the staff of the Health Service and the medical faculty the best of co-operation exists, and, whenever consultations have been necessary for students who cannot afford to call private physicians, the specialists on the medical faculty generously have given of their services.

### PHYSICAL EXAMINATIONS

Every student who enters the University is required to have, as part of his registration, a complete physical examination. The athletes and the students of certain colleges must have further examinations at certain intervals. It is hoped that eventually every student of the University may have a physical examination each year, but with the present limited facilities this cannot even be attempted. These examinations are performed by the physicians of the regular staff and are thoroughly and carefully done. No attempt at this time is made to arrive at definite diagnoses, but upon completion of his examination each student is advised of any abnormalities that were noted and is instructed to procure further medical advice concerning them, consulting with his family physician, if he has one. As a result of these examinations students each year consult private practitioners about infected tonsils, albuminuria, hypertension, cardiac murmurs, etc.

### DISPENSARY SERVICE

A medical dispensary with one or more physicians in attendance at all hours of the day is maintained exclusively for students on the University campus. To this dispensary students are

\*Presented before the Hennepin County Medical Society, April 23, 1924.

encouraged to come immediately upon the appearance of symptoms, no matter how trivial they may seem. During the year 1923 and 1924 there were 26,960 calls at this dispensary for medical advice or treatment. The great majority of the calls were made because of acute respiratory infections, furuncles, or other minor illnesses. Of all these probably not 5 per cent would ever have reached physicians in private practice.

#### HOSPITAL SERVICE

When a student is seen in the dispensary with some condition which makes it advisable for him to be out of school for a few days he is advised, if he lives in the "Twin Cities," to go home to bed and call his family physician; if he is living in some rooming-house he is at once admitted to the students' hospital. Occasionally a student from Minneapolis or St. Paul desires to be admitted to the Health Service hospital, and there may be circumstances, for example, if he has a contagious disease, which make it wise to accept him; but the great majority of hospital admissions are made up of out-of-town students. Certainly no one who has ever been sick in a rooming-house and away from home will fail to appreciate what this service means. A standing rule of the department is that all students who have a temperature of 100° F. or more, shall be sent home, or admitted to the students' hospital. Here they are held under observation until one can be certain as to whether or not they have contagious diseases. In this way many students who are developing contagious diseases are isolated several days before a diagnosis can be made, and thus exposure of many other students is prevented.

The 736 students who during the past year were admitted to the students' hospital on the main campus, remained on the average only 3.3 days. Obviously, under ordinary conditions, very few of these would have been admitted to hospitals.

#### DISEASES TREATED

Acute diseases and acute infections make up a very large percentage of the conditions treated in both the dispensary and the hospital. Contagious diseases become important problems at certain times. Injuries, particularly those incurred upon the athletic field, are given immediate treatment. Surgical operations may be performed in emergencies, although the Health Service prefers not to assume responsibility for such cases and so refers as many as possible to private

physicians and private hospitals. Chronic conditions, such as pathological tonsils, are corrected only when they interfere with the student's health and when he himself cannot make arrangements to have the necessary work done. Venereal diseases are treated in a special clinic where students who contract such diseases are given honest instruction and proper treatment and kept out of the hands of advertising quacks to whom many previously drifted.

#### EDUCATION ACCOMPLISHED

At the Students Health Service thousands of students who never have before sought medical care are receiving periodic and adequate medical attention. A great majority of the students here receive their first complete physical examination. They seek advice and care for conditions which previously they would have neglected. During several years of such service these students learn to understand and appreciate what medical science has to offer, and, after they leave the University, they will be much more likely to insist upon adequate medical service for themselves and for their families than they would have without such experience. This eventually will mean better co-operation from the public and more practice for the physicians of the state. Furthermore, it will not be many years until the graduates of the University, who through contacts with the Health Service have become familiar with the ideas and ideals of physicians, begin to take part in the making of our state laws and the framing of our state policies. Then we can expect more sympathetic attention and more intelligent opinions upon bills which relate to the practice of medicine and to the public health of the state.

Each year the Health Service gives to hundreds or thousands of students smallpox vaccinations, Schick tests, toxin-antitoxin, and antityphoid inoculations. This is practical education in the prevention of disease and is much more effective than any amount of formal instruction could possibly be.

#### CRITICISMS OF THE SERVICE

Practically every university that has established a students' health service at the beginning has met with a certain amount of opposition from the physicians practicing in the vicinity. It is natural that this should be true because here are enterprises involving the practice of medicine, concerning which most physicians have no personal knowledge and but little accurate informa-



tion. At Minnesota there has been relatively little criticism of the Health Service, but several impressions have been expressed from time to time upon which brief comment should be made.

First, it has been stated that the Health Service does too much for the students, that no one would object to inspections for contagious diseases and to the treatment of emergencies, but that the University is not justified in providing care for non-contagious and chronic conditions. Theoretically this seems perfectly reasonable, but in practice one finds that, in order to control communicable diseases, the patients with such diseases must be seen early; and we know that young people will not report their illnesses to a physician unless they have confidence in him and have reason to expect that from him they will receive some service. Consequently, in order to prevent even the communicable diseases, the Health Service must win the confidence and co-operation of the student body. As an example, a situation such as the following might be cited: An out-of-town student who is influential in the University comes to the Health Service with a pain in his abdomen. This has been present for several weeks, and the doctor who talks with him feels certain that he does not have a communicable disease. Suppose he tells the boy, "You evidently have no contagious disease; therefore, we can do nothing for you, in fact we cannot even examine you; you will have to go somewhere else in order to consult a physician." What would be the feeling of that student? He would go away thoroughly dissatisfied with the service he had received and resolved never to return, and he would make it a point to tell his friends and acquaintances to stay away from such a place. The next time that he, or one of his friends, becomes ill it might be the beginning of some disease, such as scarlet fever. He then would go to bed in his fraternity house, and after several days when the diagnosis became obvious he would call a physician. By this time numerous other students would probably be infected. Again, if this student were sent away from the Health Service without having received medical attention, the probability is that he never would see a physician because we all know that university students unacquainted with doctors in the city are very slow to hunt them up. Furthermore, such service would not be first-class medical attention and is not the type of service that we want students to expect from the medical profession. So, in order to accomplish prevention, some treatment must be undertaken; and

in actual practice it is impossible to draw any hard and fast line between the two.

Secondly, some believe that the Health Service should provide care only for those students who cannot afford to pay the usual medical fees. If such a policy were followed we would have, not a Health Service, but merely a charity dispensary for students. This would be a most unsatisfactory situation because we know that students from wealthy homes may disseminate diseases just as readily as those in less fortunate circumstances and that, if they are away from home, they may fail to obtain medical service even when it is vitally necessary. Also, many students who are dependent upon their own resources are most unwilling to accept charity and so would shun a charity dispensary and go without the necessary medical care. Furthermore, colleges and universities make no distinctions upon a financial basis between students. All pay the same fees and so all must be accorded by the university the same opportunities, privileges and services.

The fact that the Health Service may occasionally care for students from wealthy families arouses considerable feeling on the part of a few physicians, but, in reality, this is a consideration of very minor importance, for, certainly, very few students who have, in the true sense of the word, a family physician ever would leave that physician and seek care at a large dispensary. If they do, one suspects that the physician whom they left had not a very strong hold upon them. Then, too, in the course of a year the number of patients which the Health Service keeps away from private physicians probably is even less than the number which it refers to them.

Thirdly, some seem to fear that the work which the Health Service is doing may be laying the basis for "state medicine." Just what the much-used term "state medicine" really covers, it is difficult to say, but if it means that all physicians are to be employed by the State and paid out of State taxes, certainly there is no better way of forestalling such a calamity than by having throughout the state a large number of educated people who understand, appreciate, and are sympathetic to the practice of efficient and scientific medicine. Such people at once would see and understand the weaknesses and impracticabilities of such proposal, and would be the first to support the position of the medical profession against it. On the other hand, there can be but little justification for concern over the question of "state medicine" so long as the situation which was reported in the *Illinois Medical Journal*

(July, 1923) exists. A survey here reported showed that only 7 per cent of about 7,000 people from various social and economic levels sought medical attention when they were ill. The other 93 per cent, unless they thought they were going to die, patronized the various cults, relied upon patent medicines, or "let nature take its course." If this is a fair statement of the use which the public is making of the services of the medical profession, it requires a great stretch of the imagination to believe that a majority of these people are going to insist upon any medical service for which they are compelled to pay in the form of taxes.

#### CO-OPERATION OF PROFESSION NEEDED

Those who are personally familiar with the work which the Health Service is doing are convinced that in this work there are wonderful possibilities of developing an understanding and a co-operation between university graduates and the medical profession which will be of a decided advantage both to the profession and to the public. To make the most of these possibilities, however, the Health Service needs the co-operation of the practicing physicians of the state. The physicians on the Health Service staff are attempting continuously to carry on the work for the best interests of the students, the profession, and the public. From time to time, misunderstandings probably will arise, and the Health Service unintentionally may make mistakes. If any policies or practices of the service are wrong, the director would like information about them, and he invites physicians to visit the department, discuss policies, and confer about any cases in which they are interested. If there is a misunderstanding about a case, there may be important

facts of which the Health Service is ignorant, or there may be circumstances, unknown to the physician, which justify the action of the service. In any case by following such a plan a better understanding and a better co-operation will develop, and this cannot fail to react to the advantage of all concerned.

#### SUMMARY

1. Practically every American university now has some form of Student Health Service.

2. The Health Service provides physical examinations and medical care to enormous numbers of students who have never before visited a physician.

3. The large majority of illnesses treated are acute infections.

4. Students who have family physicians are referred to them for any prolonged medical care.

5. It is not possible to draw any sharp line between the types of diseases treated, nor can any distinction between students be made on a financial basis.

6. The dangers of "state medicine" are imaginary rather than real.

7. The work of the Health Service is educating students to an understanding of and an appreciation for adequate medical service, and, as these students leave the University, they will continue to obtain regular medical service both for themselves and their families; and, as representative and influential citizens of the state, they will be interested in the practice and in the advancement of scientific medicine.

8. The Health Service desires the co-operation of the physicians of the state and invites personal conferences in order to eliminate misunderstandings.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

SEPTEMBER 1, 1924

## THE ABRAMS' INVESTIGATION

For many months the *Scientific American* has been making a very careful investigation of the Abrams' method and his machine, the "oscilloclast." In the issue of August, 1924, it gives a résumé of what has been discovered. Apparently the investigation has been carried out with the utmost fairness and the endeavor of the committee of investigation was to determine whether the machine produced any effect whatever. We can give only a brief statement of what the last article contains. The writer, Austin C. Lescarbours, presents his statements in very clear and concise words, and he reproduces on the first page the efforts of various healers to overcome the world's diseases, and the things that are warranted and guaranteed to produce cures are shown to have absolutely no efficiency in the treatment of disease. Dr. James J. Walsh, Professor of Physiological Psychology, has written much on nervous subjects, and gives much advice of a wholesome type to nervous people in which he tells of the psychology of ailments, and the cures of the past, present and future, stating that they are all cures of a more or less fixed formula.

When Abrams first devised his so-called electronic reactions it was immediately taken up by Upton Sinclair in an article published in *Pearson's Magazine*. Both Mr. Sinclair and the editor of *Pearson's Magazine* became strong advocates of Abrams, and the editor was so carried

away by his enthusiastic support that he had the articles reprinted so that they might be sold by the hundreds of thousands. Then the editor of *Progress* took up the cause and became its ardent champion, and in this manner the Abrams' articles were again widely circulated. *Progress* printed many testimonials and advertisements, and the writer of the article in the *Scientific American* has the courage to produce what Dr. Abrams had to say about the testimonials, and with it a facsimile clipping taken from the "Transactions of the Antiseptic Club," and published by E. B. Treat, of New York, in 1895. He uses the following statement: "The use of the testimonial for the purpose of courting publicity constitutes one of the most despicable methods of medical advertising. There are three degrees of liar—prevaricator, liar, and, superlatively, the writer of medical testimonials." But that mattered little to these magazines which supported Abrams, and it mattered not at all to Abrams after he had swung into fame. The committee who propagated these articles evidently met with the same storm of criticism as Abrams, and they received testimonials of all kinds from people who suffered from almost all kinds of disease, and who claimed that their cancer, tuberculosis, syphilis, pernicious anemia, together with many other illnesses, vanished under the persuasive tick-tock of the oscilloclast. The men who used the machine got their patients to write protesting against the unfair treatment that Abrams was getting, but a careful investigation of the people who claimed to be cured showed that they were not all in praise of the theory later. Some of them deprecated the slightness of their pocket-books, some had absolutely no results save encouraging "diagnoses," and then, on going back to the orthodox practitioner, they recovered. There were innumerable cases in which cancer had been diagnosed, which the Abrams' treatment has failed to cure, and many of these patients had to undergo an operation to save life. Had they been operated on earlier the result would have been quite different and such that no Abramite could have acquired. Every practitioner knows that anything that promises a cure, that advertises a cure, is always accepted by a certain number of people, and they, in turn, go from one cure to another and are constantly writing testimonials. These people have so many testimonials that it is a wonder they lived to carry out the various forms of treatment.

There are doctors who fail often to recognize the so-called psychology of the patient, his his-

tory, his heredity and his behavior. Many times the patient could be saved an unlimited amount of expense if he were carefully analysed and scientifically diagnosed.

Many of us remember the electric belts that were worn in days gone by, the hooking up of patients with brass tubes filled with pink plaster of Paris, and a good many of us have read Elisha Perkins, a Yale graduate, who knew his psychology better than most of us do, and who invented a pair of metallic tractors and claimed they would furnish no end of electricity and magnetism if worn around the legs. It is said that over 1,500,000 Perkins' cures were reported early in the 19th century. Finally a canny English doctor, suspecting that the Perkins' technic was nothing more than a mind cure, used a pair of old tobacco pipes under the guise of tractors, and cured his patients equally well with Perkins' method. Consequently the Abrams' treatment and its technic may rank with that of Perkins because of the unknown susceptibility and gullibility of the average patient who goes in for cures.

Many times have the Abrams' diagnoses been checked up by scientific methods, and when confronted with this difference of opinion Dr. Abrams still maintained that his findings were correct, while those of the clinician were incorrect and worthless. Then, too, he claimed such delicacy of machinery that it would detect disease in its very incipency, that was far beyond the reach of any ordinary medical men. The *Scientific American* finally suggests that the Abrams' oscilloclast is nothing more than an electric buzzer, and you might just as well tie a door bell around your neck and expect to be cured as to rely upon this instrument. The Abrams' machine simply ticks its way into the minds of the people, and all they get out of it is the vibration, and yet the claim is one of absurdity. Dr. Abrams claimed that no electric energy came from the oscilloclast, and yet J. E. Hallberg, of the Burnett-Timken Research Laboratories, stated that "with the most delicate galvanometer ever built," he has found the oscilloclast electrode to deliver 8/1,000,000 of a volt and 1/1,000,000 of an ampere, and yet Mr. Hallberg is one of Abrams' admirers and his disclosures meant nothing because the amount of voltage and amperage was almost unappreciable. The whole thing simply proves that one can demonstrate almost anything if one is permitted to go to the utmost limits as regards terms; for instance, if we say that a wall is a sieve we might

be ridiculed, but if we set out to prove it with the use of a powerful microscope we would find that the wall consists of bits of matter with large spaces in between. After a patient has been treated with the oscilloclast and has taken the required number of treatments, that is, the number required by the operator, he is told that his ohmages have been cleared up. Electronically speaking he is cured, but it does not necessarily follow that he is feeling any better than at the beginning.

Recently the chiropractors have built a new machine. The idea of it, of course, is copied from the oscilloclast, and wonderful claims are made for its efficiency, but after a few years it will lie in the basement with the oscilloclast and we shall forget all about them, both medical and laymen.

### THE NARCOTIC SITUATION

The whole country has been interested in what is going on relative to the importation, the smuggling, and the sale of narcotics; and apparently the number of addicts has decreased. A number of men selling narcotics—bootlegging it, as it were—have been arrested and imprisoned. They are the people who should be kept under close observation by the government, and yet they are elusive, and in some way with the assistance of associates have succeeded in smuggling a tremendous amount of narcotic drugs into this country.

No doubt they come in in decreasing amounts from Canada, because the Canadian authorities have assisted very materially in diminishing the number of peddlers, and, consequently, there is not the same quantity of drugs smuggled over the borderline. Doubtless a large amount of the drug supply comes from overseas. It is smuggled into the cities of the east and into the southern coast cities, New Orleans and surrounding country, and probably the bulk of it comes in through Mexico. As there seems to be no law between the countries with which Mexico does business, enormous amounts of narcotics come in from China and evidently from other points in the Orient, and is carried over the borderline between Mexico and the United States by peons. It has been reported that Kansas City has been a very large distributing point because of its proximity to the Mexican territory.

Recently the Bureau of Hygiene in New York has sent Dr. Henry M. Bracken, who for more than twenty-two years was secretary of the Minnesota State Board of Health, on a tour of investigation in order to make a survey whereby



he could report to the officers in New York who are financing the work that he has undertaken. He recently spent three months in Sioux City, Iowa, and other cities in that state, and a part of the time was spent in Minneapolis and St. Paul, where he investigated those who were in close touch with the narcotic situation. During his residence in Sioux City he went to every drug-store and investigated the prescription files, interviewed most of the medical men, was in conference with the medical societies and committees appointed by them. He obtained very valuable information as to what doctors sometimes do to promote the narcotic habit. Numerous instances were found where doctors were prescribing morphine without much hesitancy, using names of former patients, members of their own families, and perhaps incidentally supplying themselves with the narcotic with which to satisfy their own cravings. It is well known that many physicians are addicts, but, fortunately, most of them know how to control the amount of morphine which they take, because if they get beyond a certain line the habit then becomes a vicious one, and they lose out in their practice and become common and hopeless addicts.

It was suggested to Dr. Bracken after this conference with a selected committee that it might be wise to start a clinic under the control of physicians, social workers and secretaries, the clinic located in such quarters that the addict might come in without hesitancy to the dispensary or clinic and secure what he actually needed in the way of drugs. The average addict is looked upon as a degenerate and without standing in his own community. It was thought that the establishment of a clinic would not only give him a better outlook on life, but he might, under the care and observation of physicians, probably be treated with success, and some of them might be relieved of their addiction. The numbers may be very small that could be improved, for it is a pretty well-established fact that once an addict, always an addict; that the majority of men and women who are cured are only temporarily cured. They have a weak will power, they succumb easily to temptation, and, if they have an ache or a pain, they immediately think of the relief they get from narcotics. Consequently the addict has a very difficult time because of medical opinion that so few of them can be actually cured.

The writer recalls two cases: one a woman who had been eating opium for forty years; when the

Harrison act was in effect she decided it was time to stop, and she dropped her drug without suffering or discomfort. Another a woman who had been given hypodermics of morphine for about the same length of time, forty years; she was put in a hospital under observation, and her morphine gradually withdrawn. She wrote in afterwards that she had entirely stopped the drug. These are exceptional cases perhaps, but doubtless if some control or some supervision could be exercised over the addicts, many of them would discover that the drug was of itself of no special value to them, and when they could be cured of the idea or the state of mind which they had permitted themselves to arrive at they would find that it was only an idea that kept the habit up.

There would doubtless be some drawbacks to the successful running of a clinic of this sort, and many of the addicts would doubtless take advantage of it in order to get a supply at a very moderate percentage above cost, and they might take out their quota and sell it; but, if they knew that they were to have only a certain definite number of grains to tide them over for a week, they might have the courage to keep within bounds, knowing that they could not get it except through common peddlers, and thus some of them might be relieved of their unfortunate habit.

Another feature of the situation is that the average physician cares but little about treating cases of this kind because he feels they are discouraging and almost hopeless. The more sympathetic physician in treating the morphine or opium addict is sorry for him and may give him what he needs or what he wants and make no further attempt to restore him to his normal state.

The establishment of a clinic of this sort is well worth while, at least for experimental purposes, to see what could be done, how successful it might be, and whether it would really do any good or not. At all events the supply of opium and its derivatives could be so reduced in price by a clinic that the average narcotic peddler would soon be put out of business, and that is the real crux in the matter. We shall hear more from Dr. Bracken in this regard, and, if his report is accepted and the suggestion of the committee in Sioux City is adopted, it will be a very interesting and probably a very useful experiment.

## WARREN L. BEEBE

Dr. Warren L. Beebe, a leading physician in St. Cloud since 1878, died at the Northern Pacific Hospital, St. Paul, after an illness of several months' duration. Coming to St. Cloud when that city was but a hamlet, he immediately took a prominent place in professional, civic, and social circles, which he held unceasingly to the time when illness required his removal to the hospital in St. Paul.

Dr. Beebe was born at Belpre, Washington County, Ohio, March 16, 1848, son of Dr. William and Elizabeth (Rathbone) Beebe. He attended the common schools of his native town and in 1870 was graduated from Marietta College in Marietta, Ohio. From the days of his earlier boyhood it was his determination to follow in the footsteps of his distinguished father. He graduated from the Ohio Medical College at Cincinnati, Ohio, in 1873, with the degree of M.D., a mark of real merit in those days when so many physicians received their training in the office of some general practitioner. Desiring still further to master the profession, Dr. Beebe entered the Bellevue Hospital Medical College, from which institution he was graduated in the Centennial year. With this equipment he practiced in his native village under the direction of his father. He also practiced in Barlow in the same state.

In 1878 Dr. Beebe came to Minnesota and located in St. Cloud, which city was his home till his death. He was in partnership with Dr. A. O. Gilman until within a short time of Dr. Gilman's death, after which time he practiced alone.

No member of the fraternity was better known to the medical profession than Dr. Beebe. From the first he was very successful and enjoyed a large and satisfactory general family practice. He was devoted to his profession, kept abreast of the latest developments in the sciences, especially chemistry and medicine, and had a reputation as high authority in such matters. His excellent mental powers, his long experience, and his rigid training, as well as his upright character and sympathetic nature, were among the factors which contributed to his extraordinary success in the treatment of disease and his skill in surgery. Throughout his residence in St. Cloud he was a potent factor in the professional and civic life of the city. He belonged to the Benton-Stearns Medical Society, of which he was one of the founders, to the Minnesota State Medical Association, and to the American Medical Association. In 1890-91 he was president of the

State Association, and by all of these bodies he has been repeatedly placed in positions of honor. He also affiliated with the Masonic body, the Elks, and the Knights of Pythias. He was social in his tastes and had a large circle of friends throughout the state. For many years he was local surgeon for the Northern Pacific and Great Northern Railways. Politically he several times served the city of St. Cloud as health officer, and for a number of years he was United States pension examiner.

Dr. Beebe was married December 28, 1876, to Miss T. Harte, at Marietta, Ohio, who survives him. They have two sons, William H., of Chicago, and Warren Loring, Jr., of St. Cloud.

Dr. Beebe, as known to his friends and acquaintances, was a rare character; he was honest, very outspoken, never hesitated in expressing his opinion on either medical or general topics. One might say he was bluff and rugged in speech, and yet as kind as a child at heart. He would do anything for anyone who was suffering and in need. This made him a very conspicuous man in the medical profession, and it was very rarely that he missed a medical convention either in the state or among the American medical conventions elsewhere. Consequently his tall, commanding figure, his cheerful, smiling face, and his engaging conversational powers made him a marked man. As a matter of fact he did keep up with the times. He knew literature; he studied science; he read medicine; and he kept in close contact with his fellow practitioners. For years he had been the outstanding man in St. Cloud, and he was loved and respected by every physician who ever located there. He was kind to medical men, the younger men in particular, and he always had the best thing to say of his fellow practitioners. Dr. Beebe was not like some of the rest of us who criticise our friends and acquaintances, but he praised them and was an example which younger men should follow, particularly in their association with their fellows.

The State Medical Association and various affiliated societies throughout the state will miss Dr. Beebe and his good-will and good cheer. He at one time started an account of his reminiscences, and from what we have heard from him personally it would have been an exceedingly interesting and instructive volume for someone who could write Dr. Beebe's biography and could gather up the choice bits of information founded upon sound judgment and observation, and would do a great service to his fellow-men. We shall all miss him and remember him.



## CORRESPONDENCE

### CHLORINATING THE GERMS

TO THE EDITOR:

Recently chlorin therapy has suffered a recrudescence because of the prominence given it via the newspapers and some medical journals, which have broadcasted the details of experiments made upon members of congress. One result of the agitation has been the advent of the "chlorine gas machine," put upon the market at a price which shows the method is looked upon as a transitory fad.

Some forty years ago Dr. Mew, of the U. S. Army Medical Museum, demonstrated a method of permeating the atmosphere of a room with nascent ammonium chlorid, a drug which possesses all of the therapeutic values of both ammonia and chlorin and lacks the irritating qualities of each. Dr. Mew at that time (about 1884) told me of many cases of acute and chronic nasal, bronchial and pulmonary diseases which had been cured by this treatment.

The method is so simple, inexpensive and efficient that I feel impelled to again give it publicity. The essentials are two saucers, a small quantity each of sulphuric acid, aqua ammonia and common table salt. Into one saucer pour two or three ounces of the ammonia water and into the other a like quantity of the sulphuric acid. Place the two saucers in close contact and into the sulphuric acid sprinkle a little of the table salt.

Immediately there rolls up into the atmosphere clouds of nascent ammonium chlorid, like a dense white smoke, which at once diffuses through the room and is inhaled by the patient. This "smoke" is non-irritating and, being inhaled, reaches every portion of the respiratory mucous membrane from nostrils to the most deeply hidden air cells. The ammonium chlorid, being presented in its nascent form, is easily absorbed by the mucous membrane, and the patient gets the benefit of the drug to a greater degree than when administered by the usual *per os* method.

The patient can inhale this nascent drug for an indefinite period,—one to twelve hours or longer if indicated,—without inconvenience or harm. The treatment can be administered at the physician's office (in a detached room) or at the patient's home or office; in fact, large numbers

of persons in an office, store or factory may be treated during work hours without personal inconvenience or interruption with their work.

Respectfully,

RALPH ST. JOHN PERRY, M.D.  
Minneapolis, August 20, 1924.

## NEWS ITEMS

Dr. A. I. Arneson has moved from Austin to St. Paul.

Dr. O. H. Urstad has moved from Minneapolis to Stanwood, Wash.

Dr. Frank Seidenburg has moved from Sioux Falls, S. D., to Stockton, Ill.

The Minnesota State Medical Association holds its annual meeting in St. Cloud on October 8-10.

Dr. E. Edwards, who has been school physician at Hibbing for some time, has decided to enter private practice in that city.

Dr. T. A. Peppard, of Minneapolis, leaves for Europe next week to spend a year in study, mainly in Vienna.

Dr. J. E. Countryman, who has been in Long Beach, Calif., for several months, has resumed his practice in Grafton, N. D.

The druggists of South Dakota held a three-day annual meeting in Rapid City on August 11-13; and the druggists of North Dakota also held their annual meeting last month in Fargo.

At a meeting of the Minnesota State Board of Health, last month, a committee of fifteen health commissioners and hospital heads were appointed to frame health regulations to check the spread of communicable diseases.

The newspapers of Brainerd are jubilant over the fact that the next annual meeting (in 1925) of the Northern Minnesota Medical Association, will be held in Brainerd. This is the right spirit, and it is gratifying to medical men.

The Mitchell (S. D.) Physicians and Surgeons will hold their fourth annual clinic November 11 and 12 next. Several prominent men from the West and Northwest will appear on the program. Detailed announcements will be made later.

Miss Alma Haupt, superintendent of the Visiting Nurses Association of Minneapolis, was selected by the Commonwealth Fund of New York to organize the public health work in Austria,

which work the New York organization is financing.

The Lymanhurst (Minneapolis) Medical Staff will resume its monthly meetings on September 23, when papers will be presented by Dr. W. P. Larson, Mr. Montank, and Dr. Kano Ikeda. An invitation is extended to all medical men to attend these meetings.

"The Northwest Institute of Medical Technology" is the name of the laboratory training school to succeed the training school formerly conducted by the Beebe Laboratories of St. Paul. The work of the new organization will be national in scope, and it will be conducted by Dr. H. Herbert Warner, of Omaha, Neb., a man of large experience in laboratory work.

The North Dakota State Medical Association holds its annual meeting in Bismarck next week (Sept. 10 and 11). The names of the following men outside of North Dakota appear upon the program: Dr. F. E. Clough, Lead, S. D.; Dr. R. L. Murdy, Aberdeen, S. D.; Dr. Theodor Bratrud, Warren, Minn.; Dr. E. L. Tuohy, Duluth; Dr. E. Starr Judd, Rochester; Dr. W. R. Ramsey, St. Paul; and Drs. S. E. Sweitser and W. A. Jones, Minneapolis. The program will be found below.

Dr. Warren L. Beebe, of St. Cloud, died last month at the age of 76. Dr. Beebe graduated from Bellevue, New York, in the class of '76. He began practicing in St. Cloud in 1878, and at once took a prominent part in both medical and civic matters. In his nearly half century of the practice of medicine he rarely missed a meeting of the State Medical Association or of his county society. He was one of the prominent medical pioneers of Minnesota. An editorial appreciation of Dr. Beebe appears on another page.

The President of Jefferson Medical College requests us to announce that in recognition of the far-reaching developments of bronchoscopy in the diagnosis and treatment of diseases of the lungs and of esophagoscopy and gastroscopy in the diagnosis and treatment of diseases of the esophagus and stomach, the Board of Trustees and Faculty of The Jefferson Medical College have created a new chair to be known as the Department of Bronchoscopy and Esophagoscopy. Dr. Chevalier Jackson, formerly Professor of Laryngology in Jefferson, has been elected to the professorship of the new Department. Dr. Fielding O. Lewis has been elected to fill the chair of Laryngology vacated by Dr. Jackson.

## PROGRAM OF THE ANNUAL MEETING OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION

WEDNESDAY, SEPTEMBER 10

Address of Welcome.....Hon. R. A. Nestos, Governor  
of North Dakota

Response.....Dr. F. R. Smyth, Bismarck  
President's AddressDr. James Grassick, Grand Forks  
Some Rather Prevalent Errors in the Diagnosis of  
Appendicitis

Dr. T. Mulligan.....Grand Forks

Discussion:

Dr. H. E. Landes.....Kenmare

Dr. Paul Burton.....Fargo

Acute Appendicitis

Dr. Theodor Bratrud.....Warren, Minn.

Discussion:

Dr. E. P. Quain.....Bismarck

Dr. Murdock MacGregor.....Fargo

The Industrial Triad: Carrier, Employer and Employee

Dr. C. N. Callender.....Fargo

Discussion:

Dr. Wm. H. Bodenshtab.....Bismarck

Dr. H. H. Healy.....Grand Forks

The relation of the Physician to the Administration  
of the Workman's Compensation Law

R. E. Wenzel, Commissioner Workmen's Com-  
pensation Bureau.....Bismarck

Discussion:

General

### CLINICAL DEMONSTRATIONS

1:30—Breast Feeding and the Common Forms of  
Malnutrition of Infants and Young Children

Dr. Walter R. Ramsey.....St. Paul, Minn.

3:00—Fractures of the Long Bones, lessons learned  
from handling five thousand cases; lantern slide  
demonstration

Dr. F. E. Clough.....Lead, S. D.

4:30—Neurological Cases

Dr. W. A. Jones.....Minneapolis, Minn.

### THURSDAY, SEPTEMBER 11

Treatment of Fractures of the Femur by Means of  
Skeletal Traction, Lantern slide demonstration

Dr. C. J. Glaspel.....Grafton

Discussion:

Dr. W. F. Sihler.....Devils Lake

Dr. Kent Darrow.....Fargo

Diabetes: A review of the literature of 1923-4, with  
cases

Dr. Ruth Mahon.....Grand Forks

Discussion:

Dr. E. C. Haagenston.....Grand Forks

Dr. Frank Darrow.....Fargo

Some of the Simpler Functional Tests Concerned in  
the Diagnosis of Chronic Kidney Conditions, with  
Particular Emphasis upon Chronic Glomerulone-  
phritis and the Chronic Nephroses, Lantern slide  
demonstration

Dr. E. L. Tuohy.....Duluth, Minn.

Discussion:

Dr. J. O. Arnson.....Bismarck

Dr. R. W. Henderson.....Bismarck



Infections of the Gall-bladder and Bile Ducts, Lantern slide illustration

Dr. E. Starr Judd.....Rochester, Minn.

Discussion:

Dr. J. W. Bowen.....Dickinson

Dr. R. E. Weible.....Fargo

Common Obstetric Injuries, Their Remote Affect and Suggestions as to Treatment.....

Dr. R. L. Murdy.....Aberdeen, S. D.

Discussion:

Dr. W. C. Wolverton.....Linton

Dr. E. A. Pray.....Valley City

#### CLINICAL DEMONSTRATIONS

1.30—Cardiac and Nephritic Cases

Dr. E. L. Tuohy.....Duluth, Minn.

3:00—Affections of the Colon

Affections of the Urinary Tract

Dr. E. S. Judd.....Rochester, Minn.

4:30—Skin Diseases and Syphilis, Lantern slide demonstration

Dr. S. E. Sweitzer.....Minneapolis, Minn.

#### Fine North Dakota Practice for Sale

An established North Dakota practice in the largest city in North Dakota. Address 127, care of this office.

#### Office For Rent In Minneapolis

Office of three rooms with private waiting-room. Sixth floor Yeates Building, Nicollet and Ninth, Minneapolis. Tel. Main 7322.

#### Substitute Wanted

A Minneapolis physician wants a substitute for two or three weeks beginning September 15. Will pay a reasonable salary. Address 130, care of this office.

#### An X-Ray Technician Wants Work

Has had wide experience in large clinics in the Twin Cities and has done hospital work in the country. Can give the best of references. Address 105, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Physician Wanted in North Dakota

In a town of 250. Large surrounding territory; nearest town with doctor 13 miles. Located on a State road. Prefer man who will carry his own stock of drugs. Splendid chance for good man. Address 131, care of this office.

#### Position Wanted

A nurse with three years' office and laboratory experience desires a position in an office or small

hospital. Employed last year as surgical supervisor and laboratory nurse in large hospital. Excellent references. Address 128, care of this office.

#### Position Wanted

By a middle-aged woman who is greatly in need of work. Can do ordinary routine laboratory work and can take full charge of office. Prefer work in Minneapolis. Can give the best of references to city physicians. Address 132, care of this office.

#### Position Wanted by X-Ray and General Laboratory Technician

A graduate of the Minneapolis Hospital Laboratory in x-ray and general laboratory work, with experience in St. Mary's and other hospitals. Best of references. Address 129, care of this office.

#### Practice For Sale In Minnesota

Established Minnesota practice for sale at invoice; excellent gravel roads; sound dairying and farming community; large consolidated schools with gymnasium; collections good; modern offices with dentist. Specializing. Give qualifications. Address 119, care of this office.

#### X-Ray and Laboratory Work Wanted

Position in doctor's office, clinic, or hospital by a woman thoroughly efficient in x-ray and laboratory work. Five years experience in doctor's office as x-ray technician, bookkeeper, and stenographer. Have completed a six months laboratory course. Address 120, care of this office.

#### Practice for Sale in North Dakota

General practice for sale, with opportunity for surgery, in town of 1,200 in the Red River Valley. One other physician. Good roads, good schools, including State Normal, hospital owned and run by other lodges. Reason for leaving, am going West. Address 126, care of this office.

#### Physician's Office Furniture, Etc., For Sale

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

#### Practice For Sale

One of the best practices in South Eastern North Dakota in a city of 1,800. Good high school, good railroad center and one of the best mixed farming districts, with no crop failures. Am going to the city to specialize. Practice for sale with or without residence. Good opening for German-speaking doctor. Address 124, care of this office.

#### Minneapolis Offices for Rent

Very desirable accommodation for a suburban physician wishing special office hours downtown. Choice of several rooms, whole or part time, in a building exclusively for physicians and dentists. Reception room nurse, laboratory technicians, etc., in attendance. Call at 812 Besse Building, or phone Atlantic 4786.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
Minnesota, North Dakota, South Dakota, and Montana  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 18

MINNEAPOLIS, SEPTEMBER 15, 1924

Per Copy, 10c  
A Year, \$2.00

## CHILD WELFARE\*

BY FREDERICK W. SCHLUTZ, M.D.

Professor of Pediatrics, University of Minnesota

MINNEAPOLIS, MINNESOTA

Mr. President, Ladies and Gentlemen:—

When Nathan Strauss, the great philanthropic Jew, of New York City, established a few stations for the distribution of pure cow's milk for poor children in New York City he little dreamed that by so doing he would inaugurate a movement for child welfare in this country which has spread all over the United States. It has reached every city, village, and hamlet of any size by this time. There is all over the country welfare work of the most advanced type that will care for the child or will prevent the loss of a child's life. This movement began with the work of Strauss. The welfare work for the child, or infant, begins really before the baby is born, in the so-called prenatal work. We have learned that we can begin in this way to save the baby's life before it is born.

This is brought about by the care of the expectant mother and the care and supervision under which she will place herself before the baby comes. In doing this we have learned that we avoid a great deal of trouble, not alone to the mother but to the coming baby. I will mention just a few of the things. The dreaded so-called toxemias of pregnancy, where the mother passes into a convulsive state before the baby is born. This often is fatal to the mother and is commonly fatal to the baby. We physicians know

that this can be entirely avoided if the mother places herself early enough under medical care and has proper examinations of her excreta. This condition can be prevented by dietetic measures. By placing herself under proper care at the proper time many of the improper positions of the child can be corrected. In this way many of the accidents which occur at birth are avoided, and many babies which were formerly lost are now saved.

The diet of the mother, we have learned, is very important in its influence on the baby. It is now well known and has been experimentally proven that many things,—for example, the mineral salts of the food alone,—are vastly important in the baby's life and development. The mother, by a wise provision of Nature, places all these minerals in the baby at about the seventh or eighth month of pregnancy. We know that we can definitely influence this deposit, that we can definitely influence the mother's milk in the vitamin substances which so greatly affect the child after birth. It is possible to place these things in the mother's milk and indirectly in the baby's organism by the proper care of the mother before the baby is born.

The problem of midwifery is a problem with us just as it is on the Continent of Europe. Many of the women have not been licensed, many have simply assumed this duty on the ground of experience, and I cannot tell you of

\*Presented before the public session of the South Dakota State Medical Association, Mitchell, S. D., May 20, 1924.



all the fatalities that have occurred when these untrained women have undertaken to do the work that even many physicians are often not well qualified to take care of. This is being done away with to a large extent. The licensing of midwives is now general and there is such a tendency to place certain demands upon them that they are beginning to drop their trade and there has been a tremendous decrease in the mortality of the babies and mothers as the result.

After the baby is born, the greatest movement for its welfare is eminently simple. It is the propaganda for breast feeding. We must urge every mother to nurse her baby. It is strange that we should have to speak of this, but such is the case. We medical men were probably more amiss in this than many people would think. About thirty years ago, when chemistry had its marvelous development, the doctors thought they could modify artificial food as well as they could breast milk and that this would be even better for the babies than the natural food. We had a new thing and we thought we could do wonders with it. Among other things, we began to modify cow's milk. I remember that the year Dr. Clough and I graduated it was thought entirely proper to wean a baby on any pretext. If a mother did not wish to nurse her baby it was a simple matter to take the baby off the breast. But when we began to do this the mortality rose so enormously all over the country because the babies were improperly and artificially fed, that it was soon realized that something was wrong. We did not appreciate quickly what was wrong. The pure milk propaganda of Nathan Strauss improved things. We began to wonder why we weaned so easily and soon began this great movement back to Nature, back to where we should have been at the start. The simple mother in those days was better off than the one with the doctor, the simple mother who just nursed her baby and did not wean it because it got colic, but fed it breast milk until it was old enough to take other foods. This does a wonderful thing for the baby, as simple reasoning should tell us. It does it for the animal kingdom, and why not for the human? It cares for all the needs of the baby from the first day of birth to approximately the ninth month, and there is nothing that takes its place. There are very few mothers who cannot nurse their babies and who should not nurse their babies, and if they give even some breast milk it is better than none at all. We have learned to know that we can confer immunity upon the child by even a small amount of breast

milk supplemented, if necessary, by other things,

Now, as to artificial food! If we have to feed the baby artificially or, as the child grows older, give other food, we learn another lesson. It dates back to the day when Nathan Strauss organized his pure milk stations. It was discovered that the mortality was high with unclean milk and dropped when the milk used was clean. Then we began the movement to obtain pure cow's milk. It has always been recognized that if breast milk cannot be used cow's milk is the best substitute. It has been discovered also that it must above all things be clean. This is a farming community, the farmer here is probably greatly concerned about butter fat, but the main requirement for infant feeding is that the milk be bacterially clean. We have this problem all the time in the big cities. Pasteurized milk is widely used, but it is not always a clean milk. We use certified milk if possible. It is very pure milk, and its introduction has had a great effect in reducing alimentary disturbances. Just an instance in our own city: Fifteen years ago when I located there they had no certified milk. It was with great difficulty that we got this, but now we have it and have had it for a long time. A rather remarkable thing has happened. In the summer months diarrheal disturbances are common, especially if milk is not kept cold and easily decomposes. Such milk is harmful for the baby. We had cases of diarrhea by the score, and babies died by the dozen. These diarrheal conditions have now become so rare that I have great difficulty in the summer time, or in the fall, to find enough cases to show my students so that they may know what these conditions are like. This is a remarkable thing and is general all over the country. The death rate from diarrheal disorders was a formidable figure at one time.

As a child grows the matter of diet becomes increasingly important. The child's growing organism requires minerals. The baby's mineral reserves last until about the ninth month; the baby lives on these reserves. The milk is inadequate after that time. Milk is an excellent food; it is wonderfully designed by Nature to furnish all the needs of the baby up to a certain time. It has a large amount of calcium, but not enough after the ninth month. It contains a large amount of phosphorus, but not enough after the ninth month. At about the age of nine months we begin the feeding of some solid food which contains these elements. The leafy vegetables, especially, contain a large amount of these vastly important elements and also vitamins.

The very important element of phosphorus and the very important element of iron are contained in vegetables, such as spinach, carrots, and peas. We have learned to feed the baby these additional foods beside milk, and in this way to produce a wonderfully strong, firm, and resistant organism.

From the ninth or tenth month on there is a constant tendency for the baby to grow away from its infantile condition. The baby's tissues contain more water than solids, but there is a constant tendency to change in the opposite direction as the child grows older. Its tissues tend to become solid, and at puberty it is practically the same as the adult. The solids increase, and the water decreases. Diet has very important effects on the immunity of a child. By "immunity" we mean resistance to infections. We would constantly succumb if we did not have defensive substances in our bodies which put up a constant resistance to harmful influences. The baby has this immunity to a less degree than the older child, but attains it as the organism changes under the influence of diet.

There is another factor we have learned a great deal about in the last few years, and that is the factor of air and sunlight. We hardly realize what a wonderful environment we have. The effect of sunlight is truly marvelous. It has been proved by experimentation that sunlight creates a positive balance of certain elements in the tissues. We retain calcium, we retain phosphorus if the sunlight streams over us or if our bodies are exposed to the free moving air. We do not have the sunlight always with us, but we have the artificial sunlight, the so-called quartz lamp, which produces rays which have healing effects similar to sunlight. The light rays particularly influence rickets. Rickets is an entirely curable condition. Where a child is deficient in its minerals and manifests evidences of rickets, the use of light therapy often is very helpful in correcting the condition. It has been found that the window-pane inhibits the passage of the healing rays. The body should be exposed to the moving air as much as possible and to the direct sunlight.

The formation of habits is very important as the child grows older. The pre-school age is now receiving much attention. First our attention was confined to the infant, then we began to extend the work and take in the child of pre-school age. All sorts of problems are found in such a child. We found that we must train children early in proper ways. They must have

splints, like small trees. Never leave a child to its own direction. It has no judgment. We must form a child's habits, particularly about diet. It must be fed regularly, must have proper hours of sleep, and must have proper clothing and not too much of it. We must keep in mind this fact for the growing child: Form its habits early and be firm with it—you will be well repaid for your trouble if you do.

Now, the school age: Here, again, is another problem for people who are interested in welfare agencies all over the country, and, of course, it should interest the father and mother. The dental care of the child is very important and greatly neglected. It was difficult at one time to get children's teeth cared for. They would come with decayed teeth and abscesses and the dentist would say that nothing could be done. The teeth just had to drop out. I could not believe this. Dr. Rosenow will tell you what bad things can happen to an adult with bad teeth, and why not to the child? Now, it has been found that it is an excellent thing to care for children's teeth. You all know how dentists can reform a child's mouth when it is improperly developed. The child's appearance can be improved and also its health. We must let the dentist see the child and let him advise what should be done. The child's teeth should be periodically looked after.

At this age, too, we begin to have a great deal of trouble with the tonsils and adenoids. These little children are often in an environment which makes for trouble. Children are affectionate. They love us, and they are constantly near us. They are small and are near the floor and in the dust. This dust is often highly infectious to the child. The close contact with the adult is bad. Adults frequently go around with sore throats. They may not feel any inconvenience or feel sick, and yet they can promptly give their trouble to a small child by intimate contact with it. The child develops a sore throat, it may have this a number of times, and soon will have hypertrophied tonsils and other troubles. If this does nothing worse it creates, in the course of time, a certain deformity. The child's features become dull, the chin recedes, the upper jaw comes forward, and it gets the so-called "pigeon-breast" or the "funnel-chest" deformity of the chest. It constitutes an unsightly deformity. These children are not well. They do not get along well in school. The children who have enlarged tonsils and adenoids are in great danger if attacked by certain diseases, especially scarlet fever or diphtheria. They always are very ill. They



have the fulminating type of infection and often succumb in a few hours. They have no resistance and cannot withstand the disease. We physicians dread to see these diseases in children with enlarged, hypertrophied tonsils and adenoids.

In the older child we constantly have to fight a tendency not to eat the right thing. It always wants to eat the wrong thing. The child is old enough to know what it likes, but its judgment often is not good. Candy it will take freely; and vegetables it will almost surely refuse.

Older children also have very bad habits about posture. In the child from six years on the tendency is to slump forward, the so-called "débûtante slump." I have a young daughter, and I am glad to say that she is over that age now. They do this partly because the muscular structure is not good and partly because of a tendency to just slip into any position that is comfortable. They take their food very poorly and, if not watched constantly, easily get into bad postures.

One of the most common complaints for which children are brought to me runs like this: "My child does not eat, he tires so easily. He is so pale. I cannot make him eat, he does not sleep well, he wets the bed, he has nightmare, he has terrific vomiting attacks." Such a child is generally pale, with unusually bright eyes and soft musculature. It fatigues easily. These children, usually, are at the age when the parents have high hopes for them, when they want them to be doing all sorts of things—taking up music, dancing, and such things. These little children sometimes have a most amazing program for the day. With all this big program they do not eat well. The friends of the family notice them and call the attention of the parents to their poor condition. The parents often do not realize it. These things are not as serious as they may seem, but if any infection should overtake these children they would probably succumb to it quite easily. They would not be able to handle infection so well as do healthy children.

The thing to do first is to correct and change their environment. If you cannot do it let someone else do it. They must be properly disciplined. If you do as some mothers do, tell them stories and all sorts of things, you will accomplish nothing. Do not beg or plead with the child, "Will you do this or that?", or do not promise a reward, for, if you do this with a little child, it will just lord it over you and have its own way. Take the positive attitude, tell them "You must do this" or "you must do that." Be

adamant about it. "If you will do this, then you may do that."

Be extremely careful in the selection of the diet. Let your physician inform you as to the diet which is proper for such children. They need more flesh, more tissue; they need minerals; they need vitamins. You must adjust the diet so they will get these things. They must have a good lot of pure milk, they must have a meat ration once a day. They must have a large volume of food. Do not think that the preparation of the child's food is not important. It wants the food prepared just as attractively as you would wish to have it yourself, and you must always prepare it with that in mind. Limit such a child's work. Take away all the accessory things. They are not essential. They are not, or at least most children will not be, Paderewskis or Melbas. It is only once in a very great while that they rise to such heights. The average child surely will not. Get the child in fine physical condition before you let it do anything else. Limit the activity and the exercise of the child.

A word as to postural treatment. We have introduced in our city schools what we call the postural treatment. Our best orthopedists have taken this up and advise proper exercises for these little children. They are taught the proper and correct attitude and taught to get away from the sloppy way of holding themselves.

I have a way of treating these children that has given me really good results. I correct their diet and their environment and take them out of school, generally, for about half a day. I regard education as of secondary importance at this age. In most schools the essential, fundamental things are given in the morning, and the nonessential school subjects are given in the afternoon; therefore the child is not put to a great disadvantage if he is in school only half a day. After their lunch hour they have to take a sun bath. I use this always for these cases because I feel that these children are not properly mineralized. They are exposed to the effect of sunlight for fifteen minutes over the front of the body and fifteen minutes over the back, with just the head covered, the body being entirely naked. After this exposure they rest for an hour and a half, not necessarily sleeping but keeping quiet, and then they are allowed to play. This treatment has given excellent results.

In a short talk of an evening like this I can touch only upon a few things, but it is amazing to see the wonderful results that can be brought about by simple measures of child welfare. We

can take a child's organism and influence it decidedly in a very short time. The outlook for children is always good. The child tends all the time towards recovery. It has a comeback, a faculty of recovering from things, that no adult has. That is why seemingly simple remedies often give excellent results.

There are some children who are born fundamentally, constitutionally weak, of parents who perhaps have some disease. Those children are marked in the beginning with defective cell structure and are not the same as the children born of healthy parents. There the medical man has a great handicap, but even in these children by suitable measures properly applied we can bring about marvelous results, and these children can be made quite whole and well. We surely can do a lot for them. I think in time we are going to learn to have periodic health examinations for children. I have practiced this for some time in Minneapolis. I have the children brought in periodically for examination. The whole tendency of medicine is toward prevention. We want to prevent disease. You will agree with

me that there is not a more disinterested profession in the world than the medical profession to-day, but we know that if we could periodically say to you what you should do, if we could tell you things before the development of your trouble is too far along, we could save you much misery and economic loss. It is a great disappointment to us to see cases that are so far gone that we are quite helpless to relieve them. They often could have been saved had conditions been recognized earlier.

I will leave you with this appeal: Take the child or the infant, from time to time, to your physician, even though it is apparently well. This does not need to be often, but it should be done periodically. We are advising the adult to do this. People, especially older people, are recognizing that when they get to be forty or fifty years old the organism begins to break. They should be examined periodically even in childhood, and more often as they grow older. Give your physician a chance to help you. The results will be gratifying and will repay you a hundredfold.

## A FEW PRESENT-DAY PROBLEMS\*

BY L. L. CORCORAN, M.D.

ROCK RAPIDS, IOWA

Fellow Members of this Society: I wish to say to you that the program committee has prepared what promises to be an exceedingly interesting and instructive collection of papers and clinics with the exception of this address. I have no idea that I shall tell you any thing you do not know, but if you will bear with me for a few minutes I will discuss a few of our troublesome problems in the hope that by keeping them in mind they may be all the more quickly solved.

Within recent years there seems to have been growing considerable antagonism to medical ideas and ideals and a corresponding sympathy for the pretensions of the cults and a hands-off attitude in letting them have unhampered opportunity to demonstrate what they claim they can do.

This is largely the result of propaganda, always selfish, often ignorant, sometimes malicious. For example, the magazine called *Physical Culture* has an alluring and innocent enough title. It has abundant advertising patronage and must

have a large circulation. It contains much interesting reading, but nearly every number is characterized by an almost insane venom in its derision and dislike for doctors of medicine and the things for which they stand. One might easily believe that this magazine is the subsidized mouthpiece of all the cults. Moreover, these folks make free use of the newspapers by means of which to supply the reading public with the ideas they wish to impress upon them, not in papers a long way off, but in the home paper; not a half inch of space but often a half column. The local editor is only human. His space is for sale, and, like most of us, he needs the money. We contribute to his support only to the extent of five dollars a year for a professional card which no one reads but ourselves unless there should be something odd about it, as, for example, when the printer's devil either accidentally or by design put an *e* instead of an *a* in a doctor's card and made it read "Physician *end* Surgeon." We can scarcely expect him, therefore, to go out of his way in attempting to correct their false or extravagant assertions even if he considered them to be such.

\*President's Address, presented at the Summer meeting of the Sioux Valley Medical Association at Sioux Falls, S. D., July 8-9, 1924.



Applied psychology, at least as applied to the gentle art of advertising and propaganda, must certainly be a much more important study in the curriculum of a famous institution of learning in southeastern Iowa than it has thus far been in any of our best A1 medical schools, although you may have noticed that the schools giving courses in public health work this summer seemed to be devoting some attention to methods of securing desirable publicity.

The graduates from the above-mentioned institution know that the belief in fairy tales is one of our earliest accomplishments and that credulity seems to be a trait born and bred in us. They realize that we instinctively believe anything about anything if it be reiterated often enough, forcibly enough, plausibly enough, and is not contradicted in the same manner, especially if it be something we wish to believe and about which we know little or nothing.

A few years ago we listened here to a very able address entitled, "The Average Intelligence of the Citizen," in which it was stated that a comparatively small percentage of our people belong to the highly intelligent class; and so we might expect that the less cultured would be more likely to accept the claims of the cults at their face value, but, if your experience is at all like mine, I am sure that you must be amazed to find how often your banker, lawyer, teacher, preacher, and club-woman friends will try osteopathy, chiropractic, yea even fall for the Abram's hocus-pocus. And though it is true that even these folk have only the vaguest idea of physiology and anatomy does not the foregoing indicate that we are failing in some way in the duty we owe the public?

There is quite evidently a growing feeling in the profession that we ourselves are mostly to blame in several respects. If my good friend Brown prefers the "chiro's" administerings to mine it is childish and futile to be "sore" at either. I had better discover how and why I as an individual or we as a profession fell down on the job.

One of the ways has already been suggested. Never before in the world's history have there been so many ways in which to convey a message to the public. We with our ultraconservatism have lagged behind in this respect. It is true that the different state boards of health send out occasional bulletins and that the county Red Cross nurse helps to spread light. It is true that *Hygeia* is an excellent magazine. The trouble is these publications reach so few people who

should be reached. If we wish to distribute widely our message to the public we must adopt other agencies,—the movies, the radio, the popular magazine, the newspaper. One well-written article in one of the high-class popular magazines has a much better chance of being read and digested than if it appeared in a journal devoted exclusively to health matters. Publishing agencies are often willing to accept material for its news value but if we must pay for space we should be willing to do so. The ground has already been broken for us by industrial concerns. The Metropolitan Life Insurance Co. has been buying space in newspapers and magazines to teach the value of preventive measures against diphtheria and the value of periodic health examinations, and some of the large railroads are insisting on a recent vaccination against smallpox in applicants for positions on their lines. It is surprising how much antagonism or indifference exists towards this measure to safeguard public health. Illustrative of this indifference I find that very efficient health nurses, although they take pains to discover and report any deviation from the standard weight of school children, make no attempt to determine how many have been protected against smallpox.

Advertising could be made a personal affair in an ethical manner. We should have a high-class publicity expert to prepare articles for the press and furnish the same to state boards from whom doctors might secure copy from which to select material to insert in their local papers. In this connection I wish to call your attention to the "The Friends of Medical Progress," a new national lay organization, which gives promise of becoming a powerful ally, if properly supported, and, in the words of the bulletin, they are prepared to wage a vigorous campaign to inform the public of the value of scientific medicine to men and animals, and to resist the efforts of ignorant or fanatical persons and societies constantly urging legislation dangerous to the health and well-being of the American people. Physicians can further the aims of this society by getting its literature reprinted in their local papers.

Some such plan would insure uniformity of effort, lack of which hinders accomplishment. Before and since the Shepard-Towner Bill became a law it has been highly praised by some and as vehemently condemned by others. I am amused even yet when I recall that almost before I knew what this bill was about it had been endorsed by a certain club in my town most, if not all, of whose members were at least equally as

ignorant as I, and a committee had been appointed to secure signatures to a petition urging its adoption. Which shows that we are not as alert as we should be, and that other organizations know better than we do what they want in the way of legislation, and how to secure it.

Another illustration: A few years ago at a meeting of the A.M.A., a committee of the elect decided that alcohol as a drug had no medicinal value, and this dictum was supposed to represent the opinion of the profession until the results of a questionnaire afterward disclosed that a majority of physicians thought otherwise.

Why should not more of our vital questions, including those concerning the attitude of the profession toward medicosocial problems, be submitted for free discussion and after a sufficient time a referendum be voted? It could be taken by states and could include more than one proposition at a time. A forward-looking committee might thus be able to get our composite thought long enough in advance to make it a force for or against proposed legislation. No body of men should be better able to crystalize their opinions than the men of the medical profession, and until we begin to act as a unit our influence in legislative halls will be negligible.

Not only have we failed as a body in emphasizing to the reading public the wonderful story of achievement of modern scientific medicine and surgery, of progress in the prevention and eradication of disease, and of teaching some of the important facts of physiology and hygiene, but, I fear, individually we have only too often driven people away by exhibiting a too indifferent or hopeless attitude or by giving a too gloomy prognosis. We must take a more hopeful interest in the chronic and incurable cases and a more open-minded consideration of the use of any physical agency that may be of assistance in affording amelioration or cure. In the last decade there has developed much interest in the scientific application of radiant and electrical energy. Skepticism regarding the use of these agents is being dispelled by their advocacy by good men, and when the extravagance and haziness have been eliminated from the claims of writers on this subject, indications and limitations clearly defined, and application standardized I believe these things will prove a useful addition to our armamentarium. Besides, we must never lose sight of the fact that there is a mental side to all sickness, and that any legitimate way of arousing the patient's hope and confidence and co-operation is worth while.

Another problem that merits attention is whether or not there is not a growing dissatisfaction and discontent amongst the rank and file of physicians, especially in this part of the country, with their professional and economic conditions. Within the last few years of deflation and depression it seems to have become the custom to defer paying an obligation as long as possible and not to pay all of it then. This has resulted in most business men going on to a cash basis, a thing which, on account of the humanitarian feature of his work, the doctor finds it impossible to do. And so such things as this happen: A young couple rent a farm and start housekeeping. The wife develops a toxemia of pregnancy, has a precipitate labor, a bad laceration, and a tedious recovery, all this necessitating skillful attention. The man was able to borrow money if he wanted to buy some hogs or a piece of machinery, but can he get any money from the bank to pay the doctor and nurse? No, his credit there is exhausted, and so their work goes unpaid for. This is not an imaginary or isolated instance. Such things have become entirely too common for comfort.

Moreover, it is a fact that preventive medicine is gradually lessening the number of instances of serious or prolonged illnesses, such as typhoid, diphtheria, sepsis, smallpox, rheumatic fever, tuberculosis, and so forth, thus curtailing the doctor's income; and the increased facility for travel and the growth of specialties and specialists are depriving the general physician of many cases which he is capable of handling, so that it does sometimes appear as though present-day tendencies were bringing about for him a diminishing return and forcing him to devote more time and attention to chronic ailments, to receive a larger share of the fee in surgical cases, to do his own surgery as far as possible, or to develop some new source of revenue.

The ideal for which we should all be striving is the prevention of disease and the prolongation of life. There can be no surer way to accomplish this ideal than the thorough, painstaking, periodic examination of the citizenry, and since there are nine apparently well people for one needing our care it is possible that for his own self-preservation the general physician may become, consciously or unconsciously, the greatest single factor in bringing about this custom.

Urgently and ever more urgently, and properly so, is it being emphasized that in many surgical conditions delay is dangerous. An acute osteomyelitis, an acute septic arthritis, ruptured tubal



pregnancy, a perforated viscus, and even our old friend, an acute appendicitis, are a few of the emergencies in which the well-being if not the life of the patient requires a prompt and accurate diagnosis, the avoidance of any measure that would increase the risk, and very frequently absolute insistence on early surgical intervention. Arguments for delay must be met. Disinclination and doubt and irresolution must be overcome. The full force of the physician's personality must often be exerted before the patient or his family can be convinced of the necessity of prompt action. Then comes the question of operator, the choice of whom is usually left to the attendant. He may know several men who are probably equally competent, and is likely to decide on the one most accessible and in his opinion best equipped to do that particular piece of work. This decision thrusts upon him a large measure of responsibility. He is, moreover, willing to assist as far as possible if given an opportunity.

Taking all these facts into consideration is not the general physician entitled to a more generous share of the proceeds than he usually receives? The general public expects to pay well for the operative end of a surgical undertaking, but, unfortunately, has not learned to appreciate fully that side of it I have been trying to picture. The doctor, furthermore, has discovered that the operative fee is paid more promptly than is his. As a consequence of the economic and professional conditions I have been describing there are growing, I believe, not only amongst general physicians but also amongst surgeons, a consciousness that the former have been unfairly discriminated against and a desire to secure the establishment of a custom in which it shall be openly understood that there shall be a joint fee to be divided in certain fixed proportions.

I understand that lawyers have an arrangement something like this. When a lawyer is consulted about a case that he finds must be handled by a lawyer in a distant city or state he refers the client to the distant counsellor, together with a description of the case, and he is then considered a forwarding attorney and is entitled to one-third of the fee.

In order to clear up any misapprehension that you may have on this subject I wish to quote the following paragraph from a recent A. M. A. bulletin:

"Methods for the honorable division of fees where more than one physician has contributed service in earning the fee are provided for in the principles of ethics of the American Medi-

cal Association. Obviously, each physician is entitled to just the proportion of the fee he has earned, and this division must have the patient's approval. Obviously, any portion of any fee going to any one who has not earned it is dishonest and forbidden by medical ethics—this is so-called 'fee-splitting' as distinguished from honorable and honest division of fees."

Another of the problems we meet is that of securing nursing aid for those who need it. Where the people are in moderate circumstances and the case is a long one, and especially in obstetrical cases or in any case where the mother is the patient, we hear so frequently that if they get a trained nurse they must also have a maid. They say that they cannot afford both, and, besides, it is next to impossible to get a good maid on short notice, and quite an adventure trying to break a green one in under these circumstances, and so they get along as well as they can without help, or they try to get a "practical nurse." The practical nurse may never have had any hospital experience or studied any books on nursing, but if she is neat and sensible and not too talkative she is in demand. Her popularity is due chiefly to the fact that she looks after the needs and comfort of the patient and, in addition, can do the general supervising of the household and is willing to assist with the housework.

Within recent years nurses' associations have come to resemble trades unions in many respects. They insist on a particular daily rate which differs for different kinds of cases; on the number of hours that shall constitute a day's work; on members refraining from soiling their hands with any work that is not supposed to be theirs. And, unfortunately, the patient, and sometimes the doctor, does not know exactly where the limit is.

These things may be entirely necessary and proper. I shall not argue the question except to say that I believe it is lessening their popularity. Now and then of late we hear a voice raised to question whether so much technical knowledge as the training schools attempt to give them is needed by the majority of nurses. Are we trying to make subdoctors of them? Possibly this may explain why they seem to be specializing.

Some will not take obstetrical cases, others mental cases, others contagious cases. Some wish nothing but surgical cases or cases in town.

This practice of "registering against," as they say, certain kinds of cases seems to me to be utterly wrong, not in keeping with the old un-

selfish ideals of the founders of this noble profession.

Nursing to-day smacks too much of a trade.

At any rate whether the nurses themselves or economic conditions or both are to blame there

seems to me to be a demand in most homes for some one who combines some of the qualifications of nurse and maid, and some of our hospitals ought to offer a short course where women could be prepared for such work.

## THE ANATOMY OF THE ACCESSORY SINUSES OF THE NOSE: A CLINIC\*

By J. A. PRATT, M.D., F.A.C.S.

Assistant Professor, Eye, Ear, Nose and Throat, University of Minnesota  
MINNEAPOLIS, MINNESOTA

Mr. President, Members of the Association:

This is a "dry clinic" and, possibly to some, a dry subject.

In our evolutionary development, the nose has passed from being an olfactory-respiratory organ to a respiratory-olfactory organ. The olfactory organ is greatly developed in the lower animals, particularly in the dog. The nasal space in the dog is nearly all given to the olfactory nerve.

In the nasal space, the first third nearest the nostrils, are the normal turbinates, while the posterior two-thirds are filled with the ethmoturbinals, over which are distributed the olfactory nerves.

In man, with the shortened anteroposterior measurements of the nose, the turbinates and the ethmoids, which are the vestigial remains of the ethmoturbinals, overlap each other. The olfactory nerves are distributed on the surface of the superior turbinate and the upper part of the septum.

In order to follow this development, I shall try to explain a little of the anatomy of the nose to refresh our minds.

This first slide shown is a sagittal section of a nose, showing the lateral wall on one side and the septum on the other. I shall say little about the septum because we are not interested in this particular part. It is the lateral wall that contains the secret of the sinuses. We notice, first, the superior, middle, and inferior turbinates with their accompanying meatus (indicating). In the lower meatus the only opening is the lacrimal duct, which passes down in the lateral wall just anterior to the middle turbinate (indicating).

In the middle meatus are the openings of the anterior ethmoidal cells, the frontal sinus, and the antrum, which are of particular interest in

diseases of the nose. This region, covered by the middle and superior turbinates, contains the ethmoid capsule, composed of the anterior and posterior ethmoidal cells. The attachment of the so-called middle turbinate starts posteriorly on a level with the vault of the pharynx and runs anteriorly along the lower border of the superior meatus to its anterior end, then rises nearly vertically to the vault of the nasal fossa, and then sweeps forward to its anterior attachment at this point (indicating). Under the anterior portion or body of the middle turbinate lie the anterior ethmoidal cells (indicating) while the overhang (indicating) covers and protects that portion of the middle meatus into which open the ostia of the frontal, anterior ethmoidal, and maxillary sinuses.

The superior turbinate (indicating) covers the posterior ethmoidal cells, which open into the superior meatus. If there is a supreme turbinate, which is not present in this specimen, it is located above the superior turbinate and covers an ethmoidal cell, which opens into a crevice, the supreme meatus. It is this supreme cell that is sometimes misplaced over the sphenoid sinus.

Back of the posterior ethmoidal cells, in the body of the sphenoid bone and opening into the spheno-ethmoidal fossa, is the sphenoidal sinus (indicating). This is what we call a normal sphenoidal sinus, occupying the anterior half of the body of the sphenoid bone. The anterior wall of the sella turcica marks the posterior wall of a normal sphenoidal sinus and is the point on which we base our intranasal measurements to locate the sphenoid.

At this point (indicating) in the frontal bone, is the frontal sinus with its ostium opening under the overhang of the middle turbinate.

The antrum occupies practically all of the body of the maxillary bone, and, if fully opened into the nose, would occupy nearly two-thirds of the lateral wall space.

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.



In the next series of slides, I shall show you what I call the localized anatomy of the lateral wall of the nose. The lateral wall of the nose, with the exception of the lower turbinate, is left blank, and I have endeavored to place in their order the vital portions of the lateral wall with their relations. I have first placed the uncinate process, a thin scimitar-shaped bone, attached above just under the frontal sinus, sweeping downward and backward under the edge of the middle turbinate (indicating). It has an edge pointing backward, which forms the anterior edge of the semilunar opening, known as the hiatus semilunaris, while the curved underpart forms the anterior wall of the infundibulum ethmoidale.

In the upper part of this bone (indicating) we sometimes have a cell, the uncinate cell, which is one in the anterior ethmoidal group. Just anterior to the uncinate process and running parallel with the bridge of the nose (indicating) lies the vestigial nasal turbinal in the posterior upper part of which we find the agger nasi cell or cells. This is present in practically 50 per cent of specimens. It is through this cell that Dr. Mosher, of Boston, enters the ethmoid capsule for his ethmoidal exenteration, and through which Dr. McGinnis, of Chicago, opens into the frontal sinus.

The next slide shows not only the uncinate process but also the ethmoid bulla. The bulla is a curved bleb or swelling containing a number of cells called the bulla ethmoidalis. The curved anterior surface forms the posterior wall of the trough known as the infundibulum ethmoidale.

In the next slide we see the uncinate process and the bulla ethmoidalis, and, outlined between them, is the shape of the infundibulum ethmoidale, showing how the space between the uncinate process and the bulla form this trough running, as it does, from the lower part of the frontal sinus to below the bulla, ending in a blind pocket from which opens the ostium of the antrum. The long curved opening of the infundibulum is known as the hiatus semilunaris, and it is through this opening that fluids reach the middle meatus. If there is an accessory opening into the antrum, fluids in the infundibulum will run into the normal opening of the antrum rather than out through the semilunar opening. As 47 per cent of adults have an accessory opening it is seen how readily the antrum can become a reservoir for fluids secreted in the anterior ethmoidal or frontal sinuses.

In the next slide are shown the different groups

of cells forming the anterior ethmoid cell. At the front (indicating) is the agger nasi cell. Back of the agger nasi cell and lying side by side are two groups of cells; the ones nearer the orbit are known as the infundibular ethmoidal cells, which open into the infundibulum ethmoidale, and the other group nearer the nasal fossa are known as the frontal recess under the overhang of the middle turbinate. Back of these cells and posterior to the infundibulum are the bulla cells, opening into the bulla recess. Thus it is seen that the agger nasi cell, infundibular cells, frontal recess cells, and the bullar cells form the anterior ethmoidal group.

Back of the bulla, the posterior wall of which is the attachment of the middle turbinate, lies the group of posterior ethmoidal cells. They generally consist of two cells, and when there are three the upper one is under the supreme turbinate.

The frontal sinus (indicating) is formed by a cell or cells from one of the anterior groups. If it is formed from an infundibular cell, its ostium opens into the infundibulum, and any discharge from the frontal sinus would pass into the infundibulum. If it were formed by a frontal recess cell or cells, its ostium would open into the frontal recess and have direct drainage. While only about 43 per cent originate from the frontal recess cell it is normal, for nature takes the most direct way.

It is the blocking of these sinus openings that gives the acute sinus troubles in nasal inflammations.

In animals the olfactory nerves cover the ethmoturbinals, but in our evolutionary development these ethmoturbinals were contracted and united until they form the vestigial cells we know as the ethmoidal cells. Each of these cells is lined with thin mucous membrane, secreting normally only enough fluid to maintain its own normal condition, and having an ostium sometimes hardly large enough to give drainage and ventilation, making them easy prey to nasal infections.

Now that we have a working idea of where the sinuses are situated, I wish to speak for a few minutes about the embryology. This slide (indicating) is the lateral wall of a fetus at the 49th day, showing the inferior meatus, the inferior turbinate, the middle meatus, the middle turbinate, and the superior and supreme meatus and turbينات. The palatine processes have united, so dividing the cavity into the nasal fossa and the mouth. These depressions, which we know later as the meatus, are in the embryo called

furrows. These markings or furrows sometimes number as high as eight, but the three lower ones are the ones that persist through life and form our important meatus.

In the next slide is the fetal lateral wall at the 105th day. You will see that the markings are very plain and that the ethmoid region has an early development. At this point (indicating) where the perpendicular and the horizontal portions of the middle turbinate unite, we frequently have a swelling known as the lobulus, in which is often an ethmoidal cell, and is then known as a cystic middle turbinate. This cystic turbinate is generally a compensatory growth and is found on the concave side of a deflected septum. It is necessary to do a cystic middle operation on the middle turbinate before the septum can be properly connected. This operation is performed by dividing the turbinate anteroposteriorly, instead of cutting off the middle turbinate in toto, which is the usual method.

The next series of slides are coronal sections of fetuses at different ages. The cuts are made as near as possible to the ostium of the maxillary sinus.

The first is at the age of 43 days. It shows the lower turbinate, the palatal processes, the septum, and the ethmoid region. At this age the mouth and nose are one cavity.

The next slide is at the age of 65 days, showing the palatal processes united, separating the nose and mouth, and the septum united to the floor dividing the nasal cavity into a right and a left fossa. The inferior and middle turbinates are well marked.

In the next slide, at 125 days, we see all the previous markings and the beginning evagination of the antrum of Highmore and the ethmoidal cells. This slide, at birth, shows a well-defined antrum and buds of the teeth. The turbinates are all well marked.

This last coronal section at  $4\frac{1}{2}$  years shows the meatus and turbinates well developed, and a large maxillary antrum with the ostium opening under the middle turbinate.

These slides show that the different sinuses and cells are evaginated from the different furrows. A little bud pushes itself into the furrow and gradually develops into the cell or sinus which it intends to be. The point of evagination is the ostium of the cell or sinus, and the position of this ostium tells to what group of cells this particular cell belongs regardless of its position.

The next series of slides showing the lateral wall of children from birth are taken from both the orbital and the septal side.

This slide, at 8 days, shows how well the lateral wall is developed. The turbinates and meatus are all present. Here (indicating) we see the beginning development of the sphenoidal sinus. The cell that is to form the frontal sinus has not as yet started upward. From this orbital section you will see that, while the ethmoidal cells are small, they are all there. The antrum is small but present.

This slide, at 4 months, shows the frontal cell pushing up between the perpendicular plates of the frontal bone. The antrum is larger, and the sphenoid is being absorbed into the body of the sphenoid bone.

This slide is at two years. The frontal sinus is well developed but small. The antrum is large enough to be irrigated, but should be opened above the lower turbinate to avoid the buds of the teeth. An x-ray should always be made to determine its size before attempting to puncture it. As the face develops the upper maxillary elongates, allowing the antrum to drop so that, at eight years or older, we can puncture under the lower turbinate. The sphenoid sinus is enlarging slower than the frontal and the ostium.

This slide, at five years, shows a large frontal sinus, in fact large for the age. The ethmoidal cells and antrum are well developed. It shows how closely to the antrum the teeth develop, often piercing its cavity. It likewise shows how the floor of the frontal sinus is formed frequently by the anterior ethmoidal cells, and also how in performing an exenteration of the ethmoidal cells under the middle turbinate, we open directly into the frontal sinus.

These coronal sections of a decalcified head show many anatomical points of interest in reference to intranasal surgery. This is a fairly typical head, showing few anomalies, but the beginning of conditions that, if they still further developed, would lead to serious symptoms. Unfortunately, the cuts were made slightly on the oblique, so they are not through the same points on each side of the head. The cuts were made to open as a book is opened, and so photographed. It is quite necessary to orient one's self to study satisfactorily.

*Slide No. 1.*—This cut was started about one centimeter in front of the temporo-orbital edge, and, owing to the oblique cut, more of the anterior wall of the antrum is shown on the left side. The width and height of the nasal cavity is in a ratio of one to three. In the lower third are the inferior turbinates. In the middle third are the middle turbinates. In the upper third, the ethmoidal capsules. With filling in of the



upper two-thirds by the middle turbinates and ethmoidal capsules, it gives the open nasal cavity a triangular shape, but, measuring between the orbital walls and the lower meatal walls, the width of the nasal cavity is practically the same.

The frontal sinuses are about normal size, reaching temporally to the supra-orbital notch. The upper and orbital walls are thin, dense plates of bone, while the floors of the sinuses are filled in by the anterior ethmoidal cells.

The septum is beginning to deviate, making the left nasal fossa larger than the right. To compensate for this greater space, the inferior turbinate on the left side is of greater thickness, and in the middle turbinate of this side are the beginning ethmoturbinate cells, which develop for compensatory purposes.

In the ethmoid regions the anterior walls of some of the ethmoidal cells are open.

*Slide No. 2.*—The view is posterior and the seemingly large antrum is due to the cut being more posterior on the left side. The ethmoturbinal cell of the left middle turbinate is clearly seen.

The idea of the cystic middle turbinate operation is clearly shown, for, if the lateral half of the cystic wall is removed, it leaves a straight hanging middle turbinate. The left ethmoidal capsule, with its many anterior ethmoidal cells, is about one-third wider than the right ethmoidal capsule, with only one anterior ethmoidal cell open. All through this specimen the left ethmoidal capsule is from one-fourth to one-third wider than the right ethmoidal capsule. With this compensation the fossa spacing is about the same. This is very satisfactory, except in the vault of the middle meatus, where the compensatory hyperplasias and atrophies distort the normal openings of the sinuses, which allows occlusion of these ostia in slight nasal congestion.

The posterior walls of the frontal sinuses are clearly shown. The anterior ethmoidal cells in the nasal floor of the left frontal sinus, give a very clear picture of how their removal would open the frontal sinus for drainage, also the tortuous course of the nasofrontal duct if it wound its way between these cells.

This picture also gives a very clear idea of the simplicity of opening under the middle turbinate to exenterate anterior ethmoidal cells. The actual amount of destruction is very little as only the thin partition walls of the cells are removed.

*Slide No. 3.*—This cut is about one centimeter posterior to the previous figure, and shows the view looking anteriorly.

The two lower nasal floors are seen to be about the same width, with the lower part of the inferior turbinates hanging in the center of the meatal space. Thin lateral walls separate the meatus from the antra. While the floors of the antra are always lower than the floors of the meatus, the removal of a portion of the wall under the inferior turbinate gives good drainage.

The septum is seen to be more deviated to the right as we go backward. It is interesting to note the compensatory angle of the left inferior turbinate to match the concave angle in the septum. On the right side the turbinate is straight to allow better spacing for the convex septum.

The cut through the right antrum is just at the ostium maxillaris and shows how it opens in the lower part of the infundibulum ethmoidal, the lower part of which is shown.

A deeper cut through the ethmoturbinal cells of the left middle turbinate, which still shows its enlargement to fill the space caused by the deflected septum.

The middle turbinate on the right side looks cystic, but it is not, this appearance being due to the curling up of the overhang, which is frequently mistaken for an ethmoturbinal cell.

On both the left and right sides are fronto-orbital cells lying below and posterior to the frontal sinuses. The openings of these cells are seen to be under the middle turbinates, so they are anterior ethmoidal cells, extending further than normal.

This cut is at about the temporo-orbital edge and passes through the crista galli. The floor of the cribriform plate lies practically on a line with the horizontal center of the orbits. The upper parts of the ethmoidal cells extend above, due to a dipping down in the center of the temporo-orbital plates of the frontal bone.

This cut shows the thin plates of bone that separate the orbit and brain cavities from the paranasal sinuses.

*Slide No. 4.*—In this cut the view is posteriorly. The cut through the antra shows how large these cavities are, the distance they are in touch with the orbit, and the thinness of the lateral antral wall under the inferior turbinate.

The spur of the deflected septum is shown as it projects into the middle meatus on the right side.

The middle turbinate on the right side has a cavity caused by a curling of the lower border to retract from the spur on the septum. Above, the wall of the same turbinate lies against the septum near the cribriform plate to allow drain-

age of this orbitofrontal cell into the middle meatus.

The walls of the cell in the left middle turbinate are still clearly shown.

The ethmoid capsules are well shown on both sides.

*Slide No. 5.*—This is now the third cut, and the section is viewed toward the face. The nasal wall of the antrum is shown to be greater above the inferior turbinate.

The opening of the cell of the left middle turbinate into the middle meatus is clearly shown. This establishes this cell embryologically as an ethmoidal cell.

In the upper part of the ethmoidal capsule on the left side is shown the anterior wall of the first posterior ethmoidal cell. It shows the mesial wall of this cell to be the superior turbinate, and the section comes just in the ostium of the cell, showing how it opens into the superior meatus.

The cut also comes just in the horizontal attachment of the middle turbinate that separates the anterior from the posterior ethmoidal cells.

On the right side are seen the superior turbinate and superior meatus.

The lower border of the middle turbinate on the right side seems to be attached to the spur on the septum.

Some of the muscles of the eye lie against the orbital plate next to the ethmoidal cells. Disease of these cells could easily cause irritation of these muscles and undoubtedly accounts for muscle asthenopias in low grades of refraction.

*Slide No. 6.*—This is a posterior view. The first prominent feature to draw attention is the posterior walls of the antra. On examining all the sections it is seen that the antra are very large for the specimen and occupy all the available space in the maxillary bone. The walls in every direction are very thin, and yet there is no diseased condition present.

An eye muscle on each side lies in direct contact with the thin wall of the antrum.

There is still a deflection in the septum toward the right, and the compensatory enlargement of the lower and middle turbinates on the left side is still noticeable.

The large posterior ethmoidal cells are clearly seen, and, by comparing with Slide No. 1, attention is called to the difference in size of the anterior and posterior ethmoidal cells.

Some of the eye muscles lie next to the posterior ethmoidal cells.

The posterior end of the cribriform plate is nearly reached in this section. The cribriform plate only touches the posterior half of the an-

terior ethmoidal cells and the anterior half of the posterior ethmoidal cells, having a length in the adult of about twenty millimeters. The normal length of the combined anterior and posterior cells is about 40 millimeters.

*Slide No. 7.*—The effect of the oblique cut is now shown as it passes back of the left antrum and just in front of the posterior wall of the right, leaving it open as the view is looking forward.

The posterior portion of the septum is practically straight, and the two nasal chambers are of equal size. This is true of many deflected septa, the posterior one-fourth being generally straight. The sharp spurs seen posteriorly on the septum are generally anterior to the last one-fourth.

The large posterior ethmoidal cells are shown with their walls meeting in the center. The nasal fossa usually runs straight back along the vault until the sphenoid is reached, but here is an anomaly, for there are cells meeting in the center anterior to the sphenoidal sinuses. These are the cases where the posterior ethmoidal cells which lie under the supreme turbinates grow into the sphenoid body above. It is true in this case. A simple exenteration of the posterior ethmoidal cells would open this anomaly.

The cut of this section is posterior to the cribiform plate, and it is through the posterior ethmoidal cells, thus locating the cribiform plate over the anterior portion of the posterior ethmoidal cells.

*Slide No. 8.*—This view of the same cut, but of the posterior section, shows the posterior ends of the inferior and middle turbinates. The nasal fossa is shortened as it nears the posterior area. The posterior walls of the posterior ethmoidal cells are clearly seen.

The large posterior ethmoidal cell, which occupies the body of the sphenoid, is shown on the right side, the white spot indicating the ostium of the sphenoid on the right side. The dark slit-like opening near the center on the left side is the ostium of the left sphenoidal sinus.

The floor of the lower meatus is broader and flatter, as it slopes toward the choanæ.

*Slide No. 9.*—This anterior view of this cut is particularly interesting because it shows the much talked of posterior ethmoidal cell in the body of the sphenoid cell. The two openings, with the partition between, which at first glance look like the two sphenoidal sinuses, are the right sphenoidal sinus and the posterior ethmoidal cell on the right side.

The right optic nerve is seen lying against this



posterior ethmoidal cell with only a thin bony partition between. Infection of either this cell or the right sphenoidal sinus might affect this nerve.

The left optic nerve is seen to be far removed from any sinus or cell.

This cut has removed the bone, but left the posterior wall membrane of the left sphenoidal sinus, which is seen as a round light spot beside

the right sphenoidal sinus. The slanting cut accounts for this sinus not being opened.

*Slide No. 10.*—The only points of interest in this posterior view of the fifth cut are the walls of the right sphenoidal sinus and the ethmo-sphenoidal cell.

The sphenoidal sinuses do not occupy any portion of the sphenoid body posterior to the anterior portion of the sella turcica.

## PREGNANCY WITH COMPLICATIONS: THREATENED ECLAMPSIA; PUERPERAL BREAST ABSCESS—A CASE REPORT

BY DANIEL H. BESSESEN, M.D.

MINNEAPOLIS, MINNESOTA

The patient, aged 25, primigravida, appeared on June 6, 1922, at six months pregnancy, complaining of weakness in the eyes, with occasional scotoma and swelling of the feet. Aside from a previous illness of kidney disturbance and the present illness, her history was negative. The blood pressure was 182/118 with the urine showing a trace of albumin, epithelial cells, leucocytes, but no casts. On July 8 she complained of feeling "dopey" and suffered cramps in both legs. The vision was better. The blood pressure at this time was 210/114. On July 19, 1922, the blood pressure was 190 systolic, and there was no albumin in the urine. She was admitted into the hospital on September 27 with marked impairment of vision, especially in the right eye, no edema, and blood pressure 225/140. The urine showed albuminuria, but no casts.

Following labor on the 28th, the pressure readings were 215/136, 230/124, 220/130, 195/130. On the second day after delivery, the readings were 195/125 and 200/130.

On the third post-delivery day it was the same, and on the day following it dropped to 170/120. On this day, also, the headaches which had been constant since delivery, left the patient. The temperature was slightly elevated because of some slight disturbance of the left nipple, but she left the hospital in good condition on the fourteenth day. Four days later she was readmitted with an abscess of the left breast. On the 19th of October an inferiordial incision was made and the abscess thoroughly opened with

release of four ounces of sanguinopurulent fluid. On the 31st of the same month a median radial incision was made with thorough curetting of the necrotic breast mass, and a drain was passed through the two incisions. The temperature was elevated for a period of three weeks, and she left the hospital on November 15, 1922, with a blood pressure, at the time, of 132/88. The breast healed nicely with support, which gives almost natural contour.

This patient had had previous trouble with the kidneys, and the rise of pressure with albuminuria was a combination of the toxemia with an already damaged kidney. A previous injury to the kidney allows for a higher blood pressure before convulsions occur than would be the case in the absence of previous renal damage. The vision disturbance was due to an edema of the retina quite obvious through the ophthalmoscope.

Breast abscess may be averted if treated thoroughly from the start before suppuration commences, by strapping the breast for support against the chest and applying ice-packs. In this case suppuration occurred in spite of these measures. The unfortunate feature of these infections is the tendency for each of the lacteal glands to form an individual abscess of its own, and these must be completely drained before complete healing will occur. The breast infection might indicate the probable infectious origin of the kidney disturbance and of the toxemia. Both mother and child made excellent progress.



W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

SEPTEMBER 15, 1924

## CANCER OF THE RECTUM

It is becoming quite evident that rectal diseases, particularly of the malignant type, are either more readily recognized or are growing in frequency. The man who is told by his physician, after an examination, that he has a lump in his rectum, and the physician expresses grave doubts as to the possibility of its cure, must suffer the tortures of the damned, for, in many cases, the conditions are unfavorable and inoperable. Malignancy of the rectum seems to affect men in middle life, early middle life, and soon after middle life. It doubtless is sometimes associated with cancer of the prostate, and when that is true the same prognostic difficulties attend the operation. Then, too, the better-understood disease called diverticulitis, which doubtless had been looked upon at times as a malignancy, shows that many of these patients may be improved and cured by operation. Yet this disease in itself is a very significant thing because of its involvement of so much of the wall of the colon, with so many foldings and diverticula from the wall of the bowel that a man is not to be criticized who finds upon operation that he has a case of diverticulitis and not a malignancy.

It is remarkable, too, that operations for malignancy of the rectum have been frequently followed by recovery and the patient has lived on for years with no return of his malignant process in spite of the fact that it must be very difficult to keep the lower bowel and its exit clean and

free from the sewage which goes through it. In order to obviate this continuously infected area it has been found necessary to make an artificial opening and practically cut out the rectum and the anal muscle. This necessitates much discomfort on the part of the patient, but it certainly is preferable to dying of cancer.

In a recent abstract in the *Journal of the American Medical Association* from the *Zentralblatt für Chirurgie*, Leipzig, May 24, 1924, Küttner takes exception to the view that rectal cancer must be operated on in essentially the same manner as cancer of the breast and uterine carcinoma; that the abdominal route must always be chosen, lest metastasis in the liver be overlooked; and that the whole sphincter apparatus must be sacrificed. He reports the results of the conservative sacral operation in 800 cases. There were 36 per cent of cures extending over three years or more, and 24 per cent extending over five years; 52.9 per cent of these patients secured complete and 17.96 per cent almost complete continence. Many of these patients are filling high and influential positions, which would be impossible with the handicap of an artificial anus. This is quite different from the opinion of many operators, but it seems reasonable if his percentage report of cures is reliably reported. The objectionable artificial anus which is carried around by a few individuals must be a source of great concern and means extreme care, constant dressing of the artificial opening, and constant clearance of the bowel in order to prevent odors and discomforts. It is fortunate, perhaps, that very few cases of cancer of the rectum are operated on by inexperienced men,—that they must of choice be referred to men of large surgical knowledge and wide surgical experience.

## PREJUDICE AGAINST SCIENTIFIC METHODS

It looks as if the Twin City press was emulating the *London Times*, as it prints, usually or often, a column of letters written to the press by various people on all sorts of subjects, most of them opposed to something that the press has stated as a fact. Doubtless, it is enjoyable reading matter, or the papers would not print it. Not infrequently the medical profession is hit in its midst by some critic who is either non-medical or has a pseudoscientific school of his own that he believes in. In a recent issue of the *Minneapolis Tribune*, which gives each Sunday an article by Dr. Morris Fishbein, the editor of *Hygeia*, an article of Dr. Fishbein's on "Preparing the Child for School" was very seriously



challenged by a writer. This writer objects particularly to the fact that the health officials of Minneapolis demand a certificate of vaccination within a reasonable period, and the writer of this letter takes very sharp issue with such a request because some of our health commissioners, during periods of minor or serious epidemics, have been obliged to keep children out of school who refuse to be vaccinated. Incidentally, too, this writer objects to diphtheria antitoxin, and claims that many have been made seriously sick and some have been actually killed by physicians and the administration of diphtheria antitoxin. Let his argument be granted for the time being, that occasionally a dose of antitoxin produces an anaphylaxis which ends in death. But these are very rare cases. Occasionally a child is made sick from vaccination against smallpox, perhaps because the vaccine was not properly administered; probably some uncleanness was at fault, or perhaps the child had a constitutional disease which was intensified by the temporary effect of the vaccination. Let this be granted, too. But these are exceptional cases, as the writer of the letter could very easily demonstrate. He further adds that the public should be warned before millions more of our now healthy children are made diseased by these preparations. This man has an unscientific mind, a prejudiced mind, and he writes very much like a Christian Scientist; or else he is full of dogmatism which he has created and absorbed within himself. He fails to take into account that smallpox has been nearly eliminated in many countries by proper vaccination. Epidemics have been stamped out, school children exposed to smallpox have been rendered immune because of vaccination, and countless thousands of children have recovered after the administration of antitoxin against diphtheria. People generally fail to recognize this side of their statistical investigations. It is about time the medical profession produced arguments enough that were of a convincing nature, and sufficiently plain and explanatory, to convince the people that scientific medicine is on the right track.

#### ANNUAL MEETING OF THE NORTH DAKOTA STATE MEDICAL ASSO- CIATION, 1924

Minnesota will have to look out for its laurels if it is going to conduct its state meeting in October in accordance with the methods and the example set by North Dakota at the meeting of the State Association last week in Bismarck. In the first place, Bismarck seems to be an ideal

town for conventions. It has a sufficiently large meeting place in the Masonic Temple, not only for the reading of papers but for clinics, with plenty of anterooms and other facilities. It has also a number of good hotels, and, judging from the exteriors and from the interiors, some of them are quite new, modern, and up-to-date. But the pervading spirit of the Bismarck medical men was what put the meeting in a very conspicuous light. Apparently they had everything in hand and well arranged, for everything went off with surprising smoothness, and it was an occasion for instruction and serious medical conference aside from the social side, which was ably conducted.

The Committee on Finance evidently were cordially and heartily supported, for the Association members lacked for nothing, and certainly the visitors were entertained and looked after royally.

The meeting, on the whole, was a very representative meeting, calling together many of the best men in North Dakota; and the spirit of good-fellowship and scientific interest, and the discussion of papers and clinics, were extremely gratifying. The writer does not recall a meeting of a state organization in which he was so delightfully entertained, nor does he remember a meeting in which the program was carried out with such faithfulness and fidelity.

We cannot name all the Bismarck men who largely contributed to the success in the undertaking, but among those prominent were Dr. E. P. Quain and his associate, Dr. N. O. Ramstad. They, individually, saw that all visitors were looked after and were cordially greeted, and assigned their proper place in the general organization. Dr. Quain, who is a colonel in the U. S. Medical Reserve Corps, led the Defense Day parade on Friday, September twelfth, and from all accounts the parade was foreordained a success. Dr. W. H. Bodenstab and his associates had charge of the banquet and entertainment, and it was quite evident that Dr. Bodenstab was every place at every time. He also worked with other members in the collection of clinical material, although the program and its arrangement was under the direct supervision of Dr. V. J. LaRose, with Dr. C. J. Stackhouse and Dr. N. O. Ramstad. The Hon. R. A. Nestos, Governor of North Dakota, gave a very warm address of welcome, and the response to the Governor was made by Dr. F. R. Smyth, of Bismarck, the man who is so ardent and deeply interested in medical work of every kind and is always present at the meetings.

The subject of the President's address, by Dr. James Grassick was "The Passing of the Old Family Doctor." It was a very scholarly address delivered by a highly cultured man who is broad and full of experience and who treated his subject in a very dignified and scientific manner. This address will be published soon in THE JOURNAL-LANCET and will, undoubtedly, be one of the most important papers of the meeting.

Among the visitors Dr. Theodore Bratrud, of Warren, Minnesota, gave one of his carefully prepared papers on "Acute Appendicitis," which was very warmly discussed, and his attitude was upheld by all who participated in the discussion. Dr. Walter R. Ramsey, of St. Paul, gave clinical demonstrations on "Breast Feeding and the Common Forms of Malnutrition of Infants and Young Children." Mention must be made, too, of the clinical demonstration and address of Dr. F. E. Clough, a recent president of the South Dakota Medical Association and a leading man in Lead, South Dakota. His clinic was drawn from his experience gained from handling five thousand cases of fractures of the long bones, and was one of the most able clinical demonstrations that the writer has had the pleasure of listening to. It was ably done, first, because Dr. Clough knew exactly what he was talking about, and because he advocated a simplicity in the method of treatment that would certainly appeal to everyone. He gave actual demonstrations on the preparation of splints and bandages and the position of the limb, all the time discoursing on the diagnosis and the method of reduction of fractures. The writer had an opportunity to demonstrate four interesting neurological cases which had been selected out of a large number in the clinic at Bismarck and from Dr. Bodensstab's personal clientele.

On Thursday afternoon clinical demonstrations were given by Dr. E. L. Tuohy, of Duluth, on "Cardiac and Nephritic Cases." Later, Dr. E. S. Judd, of Rochester, gave a clinic on "Affections of the Colon and Affections of the Urinary Tract," given in Dr. Judd's usual concise and illuminating manner.

The real entertainment came during the evening banquet, held at the Hotel McKenzie, attended by a hundred men. It was full of life and spirit, with music and vaudeville, and wound up with what was called a "sparring match," which seemed to entertain the members greatly. At all events the doctors played that night, and they joined in the singing of popular and new music that was very elevating because all the men seemed to be like a lot of boys, and they "sang,"

whether they could sing or not. The editor feels bound to admit that the two men who surrounded him, at the banquet table, Dr. George Williamson, of Grand Forks, and Dr. W. F. Sihler, of Devils Lake, certainly could qualify for some form of operatic entertainment.

One very interesting address which broke into the levity of the banquet was given by Attorney C. L. Young, of Bismarck, on "Some of the Medico-Legal Phases of the Practice of Medicine," and we would urgently ask our readers to remember this and read it very carefully, for it contains some very sound advice and warning of what might occur under certain conditions between the legal and the medical side of practice.

The editor also had the extreme pleasure of addressing the Rotarians of Bismarck at luncheon on some of the questions concerning biology, heredity, and natural selection. Although the talk was a good deal on the pessimistic order, it at least gave the men something to think about.

## CORRESPONDENCE

### DR. KASSOWITZ AND VIENNA ITEMS

#### TO THE EDITOR:

Dr. Charles E. Kassowitz, of the Children's Clinic of the University of Vienna, Austria, has joined the staff of the Bartron Hospital in Watertown, S. D., to take up pediatrics and general welfare work in children. He has had the opportunity to acquire most valuable experience in these matters during his long association with the famous pediatricians, von Pirquet and Schick.

On account of the dreadful war conditions, Vienna has afforded unsurpassed opportunities for testing the efficiency of hygiene and welfare work in pediatrics. In proof of the success of these methods it may be mentioned that infant mortality declined to a lower level than that existing in better times. This favorable result is due largely to the fact that poor mothers are better watched and instructed by experienced physicians and nurses, that breast feeding is encouraged and that contagious factors are avoided wherever possible.

Dr. Kassowitz has published a large number of scientific works, chiefly on contagious diseases and immunity in childhood. He was the chief collaborator of Schick, the discoverer of the well-known test for immunity to diphtheria, has worked out new methods of active immunization against this infection, and has also published papers on standard feeding, bodily development



and different many matters concerning children's hygiene.

The American Medical Association of Vienna, a body of several hundred American doctors, had him on their regular staff of lecturers. He was thus enabled to communicate, in the English language, the modern views of pediatrics to a large American audience.

He now intends to establish a special course of training for nurses, also classes for mothers with systematic instruction in different practical subjects concerning the hygiene of children. He will also address physicians on appropriate occasions upon various scientific subjects in connection with the specialty of pediatrics, selected because of their practical importance to the general practitioner.

Watertown, S. D., Sept. 6, 1924.

THE BARTON CLINIC

## BOOK NOTICES

**HERNIA: Its Anatomy, Etiology, Symptoms, Diagnosis, Differential Diagnosis, Prognosis and Operative Treatment.** By Leigh F. Watson, M.D., Associate in Surgery, Rush Medical College, Chicago, Ill. 232 original illustrations, by W. C. Shepard. St. Louis: C. V. Mosby Company, 1924.

In the preface the author states that the object of the book is "to present within reasonable space the most important features of the anatomy, etiology, symptoms, diagnosis, differential diagnosis and prognosis of hernia, together with the best operative technic of modern surgeons." The author has done this in an excellent manner; and in a small volume of 660 pages he has managed to include 232 illustrations, a detailed author and subject index, and the bibliography of the most important literature at the end of each topic. This book can easily serve the purpose of a desk reference volume on the subject of hernia.

The historical introduction takes up the development of surgery and more especially that of hernia. General consideration, such as the anatomy, etiology, symptomatology, and diagnosis, are discussed in the first chapter. Concise, short paragraphs take up the differential diagnosis of hernia and lipomata, adenitis, varicocele, saphenous varix, cold abscess, cysts, and new growths. General topics, such as sterilization of the patient and instruments, the use of various sutures and needles, are briefly discussed. Twenty-four pages are devoted to the discussion of complications and accidents in hernia. Intestinal surgery associated with strangulation is also given its proper place in this chapter.

Inguinal hernia, the most important type of hernia, is discussed from all possible angles. Six chapters, covering 151 pages, are devoted to various considerations relative to inguinal hernia. A chapter is devoted to each of the following topics: anatomy, etiology, symptomatology, treatment, and inguinal

hernia in infants and children. Local anesthesia and the Bassini operation are taken up in detail.

A chapter is devoted also to each of the following types of hernia: femoral, umbilical, ventral, diaphragmatic, internal, lumbar, obturator, sciatic, perineal, hernia of the large intestine, the appendix, Meckel's diverticulum, bladder, and the female genitalia. The last chapter includes a timely and valuable lot of information on medicolegal aspects of hernia.

The monograph is a very practical and well arranged volume on various important problems that come up in connection with the care of patients with hernia, and saves a great deal of time and energy of looking up isolated articles in the very voluminous literature of hernia. The bibliography at the end of each topic is valuable because it is so arranged that at a glance the busy surgeon can scan over in a moment's time the most important literature on any phase of hernia.

—MINAS JOANNIDES, M.D.

**DISEASES OF THE SKIN.** By Richard L. Sutton, M.D., LL.D., Professor of "Diseases of the Skin," University of Kansas School of Medicine. Published by C. V. Mosby Co., St. Louis. 1923. Price, \$10.

The fifth edition of Sutton's "Diseases of the Skin" contains much new material. The additional one thousand illustrations, are very helpful, as a knowledge of skin diseases depends, to a very large extent, on visual memory.

The book is comprehensive, up to date, and is thoroughly recommended to all interested in skin diseases and syphilis.

—G. M. OLSON, M.D.

hundred illustrations, making a total of over one  
**SEXUAL PROBLEMS OF TO-DAY.** By William J. Robinson, M.D., President American Society of Medical Sociology, etc. Ed. 12, The Critic and Guide Company, New York City. 1923.

In this volume we see the hand of the iconoclast dashing to earth some of our religiously guarded pruderies. In a vitriolic manner he denounces the laws which prevent the dissemination of knowledge relative to birth control. He presents a logical case to uphold his radical views on this subject. His arguments in brief follow: 1. Such knowledge would induce many men to get married much earlier than they otherwise would, and thus diminish the number of bachelors and old-maids. (This ought to justify his case alone.) 2. Numberless women exhaust their vitality and become chronically invalided by too frequent child-bearing. 3. Many women are chronic invalids on account of employing improper methods of prevention. 4. Numberless women have killed themselves, have been driven to premature graves by abortions or attempts at abortion. 5. Having too many children blights the lives of numberless women and reduces their lot to one of drudgery. 6. Many women, due to pelvic deformities and other physical ailments, should not be impregnated. 7. Children are the ones to suffer due to the limited facilities for education in large families. 8. Many parents have diseases or disease tendencies and should not have children to whom to transmit these pathological conditions.

He claims a low birth rate is, in general, not a sign of low morality, but of high morality, of a high intelligence, a high sense of responsibility. China and Russia, with their teeming millions, are compared to France, Germany, and the United States, and he asks the reader to pick his residence.

In heavy type he emphasizes the prophecy "The time will come, and it is not far off, when the prevention of undesired pregnancy will be as proper, as respectable, and as much the function of the medical practitioner as is now the prevention of typhoid fever, diphtheria, or tuberculosis."

He ends the book in a sarcastic manner with four infallible means for the prevention of conception, defying the \$5,000 fine and five years at hard labor sentence for giving out such information.

Here then are the four remedies:

1. Complete abstinence from any sexual relations.
2. Marry a woman who has passed the menopause.
3. In case of the man, castration.
4. In case of the woman, oöphorectomy.

—W. A. SAWATZKY

**MEDICAL CLINIC OF NORTH AMERICA.** (Issued serially, one number every other month), Vol. 7, No. 1. May, 1924. McGill University Number. Octavo of 325 pp., with 49 illustrations. Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Diseases of the circulatory system are discussed by C. F. Moffatt, who shows electrocardiograms and patients with myocardial disease; by D. G. Campbell, who analyses a series of cases of heart disease with pregnancy; and by F. G. Finley, who reports two cases of mitral stenosis with venous thrombosis as a terminal event.

Diet and insulin in diabetes are considered by I. M. Rabinowitch and by E. H. Mason.

In the group of endocrine disturbances W. F. Hamilton reviews three cases of diabetes insipidus, and F. H. Mackay outlines the function and pathology of the pituitary gland, with illustrative cases.

Diseases of the nervous system are considered in a group of papers on the various causes of sciatic pain by J. A. Nutter; on poliomyelitis and its early treatment by A. MacKenzie Forbes; on cord lesions associated with spina bifida occulta by A. A. Robertson; on the pathology and treatment of tabes by C. K. Russel; and on the various causes of convulsive seizures in a group of cases considered as epileptic.

Pediatric subjects are considered by A. Goldbloom on the diagnosis and treatment of pyloric stenosis in infancy; by L. M. Lindsay on the edemas resulting from improper feeding; by S. G. Ross on pneumothorax in infancy, illustrated by cases with *x*-ray plates and autopsy reports; by H. B. Cushing on hemorrhagic diphtheria, showing a fatal case with autopsy report.

Other subjects are so varied as to make it difficult to classify them. C. F. Martin presents a group of pernicious anemias and summarizes indications for transfusion and for splenectomy. G. G. Campbell outlines the treatment of acne vulgaris. A. T. Henderson discusses a group of cases of protein sensitization from his out-patient asthma clinic. H. P.

Wright's article on therapy by light waves is comprehensive and illustrated by diagrams and photographs. Thirteen cases of sarcoma of mediastinum and lungs are reported by C. A. Peters, with marked response to *x*-ray therapy in one case. D. S. Lewis reports two fatal cases of probable syphilis of the intestine but notes the difficulty of differentiating this from tuberculosis and carcinoma.

—OLGA S. HANSEN, M.D.

**THE ANTIDIABETIC FUNCTIONS OF THE PANCREAS AND THE SUCCESSFUL ISOLATION OF THE ANTIDIABETIC HORMONE-INSULIN.** By J. J. R. MacLeod, M.D., and F. G. Banting, M.D., Cloth. Series Number Two. Price \$1.50. Pages 69 with illustrations. St. Louis: C. V. Mosby Co. 1924.

MacLeod and Banting have in these lectures placed in a concise and readable form a review of the antidiabetic function of the pancreas and an account of the isolation of insulin. Professor MacLeod first gives a historical review of the work done on the pancreas in its relation to digestion and metabolism. The anatomy and comparative anatomy of the pancreas are discussed as well as structural changes after ligation of the ducts. The basis is given upon which Banting and Best's original experiments depended.

The experimental results from the use of insulin in experimental hyperglycemia after puncture of the fourth ventricle and after the use of epinephrin are reported. These show the almost complete inhibition of the usual hyperglycemia in a rabbit given insulin. In the discussion of the mechanism of the action of insulin it is suggested that the effect of insulin is, fundamentally, to convert glucose into some substance intermediate in metabolism, possibly a highly reactive variety of glucose, before it can be utilized by the tissue cells.

Banting, in his lecture, briefly surveys the first preparation of insulin and the results of clinical investigation concerning dosage, administration, overdosage, acidosis and coma, and other complications of diabetes mellitus.

—C. A. MCKINLAY, M.D.,

**THE CIRCULATORY DISTURBANCES OF THE EXTREMITIES.** By Leo Buerger, M.A., M.D., Philadelphia: W. B. Saunders Co., 1924.

In this treatise Buerger has broadened the scope of his earlier observations and has produced what is perhaps the most comprehensive of recent studies of vascular diseases. The histology is adequately presented and embodies the recent work of Krogh. Attention is paid to the developmental vascular changes as previously reported by Aschoff, Jores, and others.

The physiology of the vasomotor apparatus is treated at length, and the modern conceptions of capillary motility are fully discussed.

Gangrene in all its phases is elaborately portrayed, and incidentally is presented a very interesting account of its prodromata.

The chapters relative to thrombo-angitis obliterans, as might well be expected, are by far the most scholarly and complete. Of this subject Buerger speaks with the authority gained from a large clinical experience and an adequate amount of pathological material.

The chapters on the vascular neuroses and neuro-



trophic disorders are included and, while sufficiently elaborate, are necessarily handicapped by the speculative value of indirect proof.

The book contains a wealth of material and is a distinct contribution to medical literature.

The arrangement is not always sequential or logical, which is due to an obvious attempt at reconciling brevity with thoroughness.

However, the author has happily included subject matter which should be of interest to all branches of medicine.

—A. A. ZIEROLD, M.D.

## NEWS ITEMS

Dr. R. A. Scott has moved from Drayton, N. D., to Crystal, N. D.

Dr. A. C. Dean has moved from Grand Forks, N. D., to Hatton, N. D.

Dr. E. C. Gayer has gone to Europe for a year of study in the hospitals.

Dr. L. H. Mattson has moved from Stephen, Minn., to New Rockford, N. D.

The United States Veterans Hospital at St. Cloud will probably open next week with appropriate ceremonies.

Dr. Roger S. Countryman, of St. Paul, was married last week to Miss Dorothy Trapp, of New Westminster, B. C.

The dispensary of the University of Minnesota gave free treatment to between 25,000 and 30,000 patients during the year ending July 1.

The health conditions in Virginia, Minn., were reported for August as the best in many months. Not a single new case of smallpox was reported.

Dr. S. G. Wright, of Minneapolis, has returned from Europe where he has been engaged in special study in eye, ear, nose, and throat work.

Dr. Albert Scabell, of Berne, Switzerland, who has been practicing for some time with Drs. Lewis and Kern, of St. Cloud, will soon return to Europe.

Dr. L. H. Fowler, who has been on the Mayo Clinic staff at Rochester for a couple of years, has located in Minneapolis with offices in the Andrus Building.

The St. Louis County (Minn.) Trachoma Hospital was opened for patients last week at Eveleth. Over sixty cases have been selected for immediate treatment.

The physicians of Melrose have equipped a hospital in a commodious residence building that

has been thoroughly overhauled. It has eight rooms and a large sunparlor.

The annual meeting of the Grand Forks (N. D.) District Medical Society has been postponed from September to October because of the meeting of the State Association this month.

The Mississippi Valley Tuberculosis Conference will be held in Sioux Falls, S. D., on September 22-24. Twelve State Tuberculosis Associations will send delegates to the Conference.

The Minnesota State Tuberculosis Hospital at Deerwood is seeking contributions to pay for installing a radio set at the hospital, which, with an ear phone for each patient, will cost about \$900.

The South Dakota State Association of Graduate Nurses held its eighth annual meeting in Yankton, S. D., on August 28-29. The attendance was good, and the entire program was admirable.

Dr. D. A. Gregory, who has had charge of the laboratory of the Sioux Falls (S. D.) Clinic since 1920, has taken up private practice in Sioux Falls with offices in the First National Bank building.

The Central Minnesota Medical Association met at Green Lake on August 27 for its annual vacation meeting. Dr. Gilbert J. Thomas, of Minneapolis, and Dr. C. N. Hensel, of St. Paul, presented papers.

Dr. Einar W. Johnson, of Bemidji, has gone to Europe for several months. He will study mainly in Edinburgh and Vienna. Dr. R. E. Mayer, of Minneapolis, will have charge of Dr. Johnson's practice during his absence.

Dr. G. C. Harmon has begun practice in St. Paul, with offices at 2267 Como Ave. West. Dr. Harmon graduated from the University of Minnesota with the class of '23 and took his internship at the Anker Hospital, St. Paul.

The new nurses' home of St. Luke's Hospital, Duluth, will be ready for occupancy by October 1, and the new hospital building will be completed in December. The cost of the entire hospital plant will be about one million dollars.

Perhaps every physician in the country has received a request for a donation of \$1.00 from the so-called National Disabled Soldiers League of New York. This League has no connection with the American Legion or any other recognized organization of veterans of the war.

The Minnesota State Medical Association will hold its 1924 annual meeting next month (Octo-

ber 8, 9 and 10) at St. Cloud, and the members of the Stearns-Benton County Society are doing everything in their power to make the meeting a successful, enjoyable, and profitable one.

The second annual short course (two weeks) for physicians given by the University of Minnesota opens to-day. One section is devoted to obstetrics, gynecology, and pediatrics; and one section to laboratory diagnosis, applied therapeutics, and x-ray work. The work in the second section takes only one week (Sept. 22-27).

The Richland County (N. D.) Medical Society met last month at Lidgerwood, N. D. Interesting and practical talks on medical subjects made up the program. The officers of last year were re-elected, as follows: President, Dr. E. G. Sasse, Lidgerwood; vice-president, Dr. J. C. J. Wiig, Wahpeton; secretary-treasurer, Dr. C. A. Durkee, Lidgerwood.

Dr. Robert Hyndman Mullin, formerly Associate Professor of Pathology and Bacteriology, Medical School, University of Minnesota, and Director, Laboratory Division, Minnesota State Board of Health, died on August 24, in Vancouver, British Columbia. For several years he was pathologist for the Vancouver General Hospital and connected with the University of British Columbia. He was 47 years of age.

At a conference called by the Minnesota State Board of Health last month, the state, city, and county health officers, hospitals, etc., of Minnesota took steps looking to more efficient health regulations for the control of contagious diseases. Dr. Charles L. Schofield, of Benson, the president of the Board, was authorized to appoint a committee of fifteen to consider proper regulations and report to the Board next month.

At the first fall meeting of the Hennepin County Medical Society, held last week, the following new members were elected: (by ballot) Drs. L. L. Leonard, Joseph H. Taylor, H. D. Diesner, Leo Rigler, R. F. McGandy, F. R. Hirschfield, Charles E. Merkert, Henry O. Ruud, Frank W. Stevenson, and Francis E. Murphy; and (by transfer) Dr. L. Haynes Fowler (Olmsted county), Dr. Geo. E. Runnerstrom (Brown-Redwood), and Dr. H. J. Hanson (Kandiyohi-Swift).

At the annual meeting of the North Dakota State Medical Association, held at Bismarck last week the following officers were elected: President, Dr. W. C. Fawcett, Starkweather; president-elect, Dr. J. H. Rindlaub, Fargo; first vice-president, Dr. N. O. Ramstad, Bismarck; second

vice-president, Dr. Thomas Mulligan, Grand Forks; treasurer, Dr. W. W. Wood, Jamestown; secretary, Dr. Alex J. McCannel, Minot. Dr. H. J. Rowe retired as secretary after nineteen years of service in that position and after his retirement from practice and removal from the state. The meeting is further noticed in our editorial columns.

In a recent issue we erroneously located Dr. L. R. Critchfield, of Kenmare, N. D., at St. Cloud, Minn. Dr. Critchfield, who graduated from the University of Minnesota in 1909, practiced in North Dakota until a year and a half ago, over six years in Kenmare. He has just completed a year and a half, the past year as senior resident physician, in the Children's Memorial Hospital of Chicago, and has located in St. Paul (936 Lowry Building), and will confine his practice to Children's diseases.

The Inter-State Postgraduate Assembly, directed by the Tri-State District Medical Association, will be held in Milwaukee, Wis., on October 27-31, giving five full days of postgraduate work. The names of many distinguished men, in and outside of the medical profession, appear upon the program, among them being Dr. Nicholas Murray Butler, President of Columbia University; Sir Arthur William Currie, President of McGill University, Faculty of Medicine; Dr. Merritt W. Ireland, Surgeon-General of the United States Army; Dr. Edward E. Stitt, Surgeon-General of the United States Navy; Monsieur J. Jusserand, French Ambassador to the United States; Professor Theodore Tuffier, Professor of Surgery, Faculty of Medicine, Paris, France.

#### **Fine North Dakota Practice for Sale**

An established North Dakota practice in the largest city in North Dakota. Address 127, care of this office.

#### **X-Ray Machine for Sale**

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### **Minneapolis Office Space to Sublet**

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrahe. For information call at the office or telephone Main 3220.

#### **Laboratory Technician Wanted**

A pathologist or an expert laboratory technician for a South Dakota clinic and hospital. One trained in serology and blood chemistry. Good salary. Address 134, care of this office.



**Physician Wanted in North Dakota**

In a town of 250. Large surrounding territory; nearest town with doctor 13 miles. Located on a State road. Prefer man who will carry his own stock of drugs. Splendid chance for good man. Address 131, care of this office.

**A Good Opening**

Excellent opening in Southwestern Minnesota for cost of drugs and office furniture. Good territory; only physician; desires to locate on coast. Good roads; four-year high school; mixed community. Address 135, care of this office.

**Position Wanted**

A nurse with three years' office and laboratory experience desires a position in an office or small hospital. Employed last year as surgical supervisor and laboratory nurse in large hospital. Excellent references. Address 128, care of this office.

**Position Wanted**

By a middle-aged woman who is greatly in need of work. Can do ordinary routine laboratory work and can take full charge of office. Prefer work in Minneapolis. Can give the best of references to city physicians. Address 132, care of this office.

**Position Wanted by X-Ray and General Laboratory Technician**

A graduate of the Minneapolis Hospital Laboratory in x-ray and general laboratory work, with experience in St. Mary's and other hospitals. Best of references. Address 129, care of this office.

**Practice for Sale in North Dakota**

General practice for sale, with opportunity for surgery, in town of 1,200 in the Red River Valley. One other physician. Good roads, good schools, including State Normal, hospital owned and run by other lodges. Reason for leaving, am going West. Address 126, care of this office.

**Southern Minnesota Practice for Sale**

A \$6,000 cash, unopposed and growing practice in town of 500. Four churches, high school, two banks, creamery, good dairying and farming country, excellent roads. Competition, 25 miles north, 25 miles south, 10 miles east and 10 miles west. \$700 buys practice and office furniture. Address 137, care of this office.

**Laboratory Position Wanted**

By a graduate nurse and college graduate; B.S. degree; two years' experience besides four years' college training in medical technology including all routine analyses, bacteriological work, Wassermanns, blood chemistry and basal metabolism; best of reference; available October 1. Address 136, care of this office.

**Fine Location in South Dakota**

In town of 1,250, east central part of state. Competition 22, 35, 13, and 13 miles. Excellent wards. Modern office with dentist. Complete office equipment and drugs. No real estate. Young man with hospital experience would make good here. Reason for selling: leaving state to specialize. Address 139, care of this office.

## Post Graduate Hospital and Medical School OF CHICAGO

has given **SPECIAL POST GRADUATE TRAINING** to  
**PHYSICIANS and SURGEONS** for over **THIRTY YEARS**

### General Course for the General Practitioner INTENSIVE SPECIAL COURSES

as follows:

**PHYSICAL DIAGNOSIS**  
**CHILDREN'S DISEASES**  
**GYNECOLOGICAL PATHOLOGY**  
**GYNECOLOGICAL DIAGNOSIS**  
**EYE, EAR, NOSE AND THROAT**  
**CYSTOSCOPY and ENDOSCOPY**

**DERMATOLOGY and SYPHILOLOGY**  
**STOMACH and RECTAL DISEASES**  
**EXTERNE SURGICAL ASSISTANTSHIP**  
**RESIDENT SURGICAL ASSISTANTSHIP**  
**OPERATIVE SURGERY on CADAVER and DOG**  
**BLOOD CHEMISTRY and WASSERMANN**

**Graded Course in EYE, EAR, NOSE AND THROAT**  
**LABORATORY AND X-RAY TRAINING for PHYSICIANS AND TECHNICIANS**

### SOMETHING NEW

A practical, comprehensive Laboratory Course on the **ANATOMY** of the **HUMAN**  
**BRAIN and CORD** for Physicians and Surgeons now available.

For further information address

**POST GRADUATE HOSPITAL AND MEDICAL SCHOOL, 2400 S. Dearborn St., Chicago, Ill.**

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

Vol. XLIV, No. 19  
New Series

MINNEAPOLIS, OCTOBER 1, 1924

Per Copy, 10c  
A Year, \$2.00

## STREPTOCOCCI IN THE ETIOLOGY OF EPIDEMIC ENCEPHALITIS, SPASMODIC TORTICOLLIS, RESPIRATORY ARRHYTHMIA, AND CHOREA\*

BY EDWARD C. ROSENOW, M.D.

Division of Experimental Bacteriology, the Mayo Foundation  
ROCHESTER, MINNESOTA

During an extended study of the infecting power of bacteria isolated in various diseases, I have been impressed by the extremely specific effects of green-producing streptococci, especially those isolated from infection atriæ, and from the brain and cord in diseases of the nervous system. Herpes zoster, associated with lesions in the intervertebral ganglions, was produced in rabbits and dogs by intravenous injection of a green-producing streptococcus from infection atriæ in patients at the time of acute attacks. This was not accomplished after recovery, nor after long cultivation of the organism. A similar streptococcus from four patients with intercostal neuralgia produced marked lesions of the posterior or sensory roots, usually unassociated with herpes, on intravenous injection in rabbits. A green-producing streptococcus obtained on two occasions from the infected tonsils and teeth of a patient with severe multiple neuritis showed marked affinity for nerves, especially peripheral nerves, in three species of animals, a finding corroborated since in other cases of neuritis and in sciatica; in the latter, however, the lesions were most marked in the sheaths of large nerve trunks. Intravenous injection of this type of organism from pyorrheal pockets and the infected tonsils in a patient with infectious transverse myelitis produced par-

alysis with hemorrhagic lesions in the cord, in a series of animals. The lesions in each of these experiments were proved to be due to the streptococcus injected.

In my earlier experiments with encephalitis, intravenous inoculation of a suspected streptococcus sometimes produced encephalitis, but not sufficiently often for routine analysis. Owing to previous observations of extremely specific effects in this group of organisms I thought that perhaps intracerebral injection of small amounts of suspensions of nasopharyngeal swabs and pus from tonsils or cultures thereof, might serve to separate the neurotrophic strains from the saprophytic organisms, and this assumption was correct. The method has been used in a study of various forms of encephalitis, epidemic hiccup, and allied conditions, including acute chorea. The organisms isolated in these diseases are all similar in morphology, cultural characteristics, and general virulency, but they are very different in their localizing and symptom-producing power. With the respective strains the main symptoms and essential lesions have been reproduced in animals. From the inception of this work it was realized that extraordinary proof of causal relationship would be required in this field as the organism is of quite ordinary morphology. This requirement has been fulfilled as may be seen in the experiments of published reports and has

\*Author's abstract of a paper read before the South Dakota State Medical Association, Mitchell, S. D., June, 20 and 21, 1924.



been verified in a new series of experiments. The specificity of the respective strains is often remarkable. Thus, in the case of the strains from epidemic hiccup, spasms of the diaphragm were not only produced with the living streptococcus, but with the corresponding dead organisms and with filtrate of actively growing cultures. This symptom never developed following injection of the dead bacteria and filtrates after the living streptococcus had lost the power to incite spasms of the diaphragm.

The results following intracerebral inoculation in the new series of cases are summarized in Table 1. It will be noted that the high incidence

ranged from 50 per cent in spasmodic torticollis to 100 per cent in myoclonic encephalitis. The characteristic streptococcus was isolated from the brain in nearly all instances. The blood in the Parkinsonian and myoclonic encephalitis, in respiratory arrhythmia and spasmodic torticollis groups was nearly always sterile, while in the case of the acute chorea group the streptococcus was isolated in 31 per cent of twenty-six animals injected intracerebrally. This relatively high incidence of the isolation of the streptococcus from the blood following injection of the chorea strains was associated with a high incidence of lesions of the heart valves and myo-

TABLE I  
PERCENTAGE INCIDENCE OF SYMPTOMS AND MORTALITY FOLLOWING INTRACEREBRAL  
INOCULATION OF THE STREPTOCOCCUS

Source of strain	Brain	Blood	Cases	Animals injected	Mortality, per cent	Muscular spasms, per cent	Nystagmus, per cent	Rhythmic movements, per cent	Tic-like movements, per cent	Ataxia, per cent	Turning of head, per cent	Tremor, per cent	Hyperpnea, per cent	Paralysis, per cent	Lethargy, per cent
Parkinsonian encephalitis	88	6	5	16	94	6	6	19	6	69	6	75	6	13	0
Myoclonic encephalitis	71	0	2	7	100	86	0	0	0	14	0	86	43	0	0
Respiratory arrhythmia	71	0	2	7	71	0	0	0	0	43	14	29	86	14	0
Spasmodic torticollis	63	13	4	8	50	0	25	13	63	88	38	13	13	13	0
Chorea	69	31	3	26	85	12	8	54	12	69	8	38	4	4	0

of certain symptoms in the animals corresponds suggestively to that of the main symptoms in the patients from whom the material was obtained. Thus in the Parkinsonian group, tremor which was often marked was a prominent symptom in 75 per cent, and ataxia in 69 per cent of the sixteen animals injected, muscular spasms occurred in only one (6 per cent), whereas in the myoclonic group muscular spasms occurred in 86 per cent and tremor in 86 per cent of the animals injected. By far the most striking symptom in the respiratory arrhythmia group was an undue disturbance of the respiratory center hyperpnea being noted in 86 per cent of the seven animals injected, an incidence much higher than in any of the other groups. Tic-like movements, especially of the head (63 per cent), ataxia (88 per cent), and turning of the head (38 per cent) were the prominent symptoms in the animals injected with material from four cases of spasmodic torticollis. The relatively high incidence (25 per cent) of nystagmus in this group is also noteworthy. The experiments with the three strains from acute chorea were most striking. Rhythmic, often choreiform movements occurred in 54 per cent and ataxia in 69 per cent of the twenty-six animals injected.

The mortality rate in the different groups

cardium, which is in sharp contrast to results following injection of the other strains in which heart lesions rarely occur. The difference in the behavior of the encephalitis and chorea strains was also noted following intravenous injection. Endocarditis, resembling that noted clinically in chorea, developed, and myocardial lesions resembling Aschoff bodies in which the streptococcus was found were demonstrated microscopically following inoculation of the chorea strains, whereas following injection of the streptococcus from encephalitis and allied conditions in which endocarditis does not occur, lesions of the heart were extremely rare.

Sections of the brain and cord were made in thirty-seven rabbits in the new series. Of these twenty-five were injected five days or less before death; none showed lesions resembling the spontaneous encephalitis. Seven rabbits showed a varying degree of leukocytic and round-cell infiltration, the former usually predominating. The remaining twelve were injected six or more days before death with material containing the streptococcus. Of these eleven (92 per cent) revealed perivascular infiltration, chiefly by round cells, resembling that of encephalitis in man. Diplococci, sometimes in short chains, were demonstrated in the lesions in most instances, but not in the tissues free from lesions.

The cellular infiltration was much alike in the animals injected with the streptococcus from the different groups, but the location of the lesions differed greatly. The basal ganglia were most markedly involved in the Parkinsonian type of encephalitis and in spasmodic torticollis. The meninges over the cerebral cortex, the cortical and subcortical regions were markedly involved in cases of myoclonic encephalitis and in chorea, while the anterior aspect of the medulla was most affected in the respiratory arrhythmia group.

My previous results as regards both characteristic symptoms and lesions were again obtained. The nasopharynx and other infection atria, such as tonsils and teeth in cases of ancephalitis and allied conditions, commonly harbor a streptococcus having peculiar neurotrophic properties, even long after onset in patients in whom the symptoms have been progressive, but not in well persons who have not been in contact with the disease,

nor in the absence of epidemic encephalitis in the community.

The organism, contrary to current conceptions, has been consistently demonstrated in the lesions in the brain in fatal cases of acute encephalitis in man and in lesions produced experimentally in animals, and proved absent remote from the lesions. The organism varies greatly in size and shape and has been repeatedly isolated from filtrates of nasopharyngeal washings and of emulsions of the brain in fatal cases and of animals in which the disease was induced experimentally. The respective strains have similar antigenic and immunologic properties, and specific agglutinins have been demonstrated in the blood of patients recovering from acute attacks. The requirements for causal relationship of the streptococcus in question to the diseases studied would seem to be fulfilled, and a rational basis for preventive and specific therapeutic procedures in a most deplorable group of diseases is at hand.

## PEDIATRIC CLINIC\*

By F. W. SCHLUTZ, M.D.

Professor of Pediatrics, University of Minnesota

MINNEAPOLIS, MINNESOTA

### CASES I, II, AND III: RICKETS ✓

CASE I.—These patients exhibit trouble with which you are all familiar. It is rickets. We have here a baby sixteen months old, which was breast fed for only a few days. Then the mother did not have enough milk, and the baby was put on cow's milk and was kept exclusively on cow's milk up to the ninth month. It then began to have cereals. The child is now sixteen months old, but gets practically nothing but cow's milk and very little solid food.

The child has bronchitis, but you can see the contour of the head and its peculiar malformation,—the asymmetry of the face, the head not excessively large, the fontanel still quite open, being about 4 cm. across each way. The baby has eight teeth, and there is a definite enlargement of the wrists and ankles. There are a very pronounced rosary, a moderately prominent abdomen, and an umbilical hernia. These are all very characteristic evidences of rickets.

The muscle tone is soft, and the skin is moist.

The tissues give the impression of being hydrated and lacking in mineral substance.

We have here, then, in this child of sixteen months very definite typical evidence of rickets,—the unclosed fontanel, the formation of the chest, the rosary, and the umbilical hernia. The child has not attempted to walk and does not creep. It has a fair number of teeth. This is the only favorable thing about its condition.

CASE II.—This baby is one year old. The birth was normal, and it was breast fed up to nine months. Since then the mother has been giving cow's milk but no solid food. This child had convulsions at the sixth month, and they have continued on an average of once every two weeks, occurring apparently out of a clear sky, without any connection with any disease, except the first time. The first convulsive seizure occurred during some acute febrile disturbance, but since then there has been no connection with any disorder.

There is in this case some evidence of rachitic manifestations, but not as much as in the first patient I showed you. The head is not enlarged and the fontanel is nearly closed. He has four teeth, very slight enlargement of the wrist and

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.



ankle bones, a rather prominent abdomen, a very moderate but quite definite rosary, and a slight tendency to umbilical hernia.

The tissue tone is much better than in the first case. The tissue is not so hydrated, there is apparently more mineral substance, and the tissues in every way are in much better shape in this child than in the other, but remember the convulsions.

CASE III.—Here we have the most extreme type of rachitic manifestations. This is really a case of osteomalacia. This condition is congenital, existing from birth. It does not always deform as badly as is the case in this child, but here the condition has existed since birth. There is an extreme deformity of all the long bones and of the chest and back. The head is rather large, and the fontanel is now closed. This child is six years old. There is extreme retardation of growth in every way. There is complete absence of all muscular tone, and there is complete demineralization. This is the most extreme type of rickets that you will see, the condition known as osteomalacia.

This child has had at least one fracture. In the x-ray plates you can observe the extreme fragility of the bones, and here (indicating) is an old fracture. These patients often have as many as two dozen fractures in their long bones; the least injury is liable to cause them.

Treatment: As to treatment of these cases, I first want to make a differential diagnosis in the second child. There are not very definite rachitic symptoms. It has the symptoms of convulsions which began at the sixth month. The question is, Are we dealing here with another condition associated with the rickets? As you all know, the disorder that is commonly associated with rickets, and that has a similar underlying metabolic disturbance, is tetany, both having primarily disturbance of calcium metabolism. The question is, Is this baby a spasmophilic along with the rickets? The two conditions are very commonly associated, and, if we find one, we should always look for the other.

This child has practically none of the spasmophilic phenomena, except the convulsions. It does not have the peculiar reaction in the cheek,—the Chvostek phenomenon. I cannot take the electrical reactions in this child to determine the so-called Erb's phenomenon. It is necessary to have a special apparatus for this test.

Erb's phenomenon is the absolutely final test as to whether one is dealing with spasmophilia or the other convulsive disorders of children. There are only two non-febrile convulsive dis-

orders in children, spasmophilia and epilepsy. This baby has no Trousseau phenomenon, and I see no Chvostek phenomenon. The convulsions occur out of a clear sky, and the baby tends to sleep for a long time afterward. The condition probably is epilepsy. There is a history that rather confirms this opinion. A sister of the mother is definitely epileptic, and there is probably in this case a primary epileptic condition and a secondary condition of rickets.

It will be interesting to know whether these convulsions will continue through the summer months. The spasmophilic convulsions always tend to disappear, or become less marked, during the summer months. The epileptic convulsions know no time or reason: they come on night or day at any time of the year. We have no definite knowledge or history that some of the convulsions have occurred at night, but we know they have occurred in the daytime. These convulsions will probably continue to occur unless we can influence them by treatment. The problem here would be to treat the rachitic condition and to treat the epilepsy. This can be accomplished in two ways. The most improved treatment for the rachitic condition in a child of this age is to give a diet sufficiently abundant in minerals. That means green vegetables, with fruit mixed with cereals, and toasted breads. The child should be given such solid food constituents three times a day, and should have a fairly liberal milk feeding. We would not do this if it were spasmophilia, but I am quite positive that we are dealing with epilepsy, and we want milk for the calcium content it has. A dietary high in minerals is good in all cases of rickets, also in spasmophilia, and is an excellent thing for the epileptic.

I would give the child some calcium bromide preparation, giving a fairly good-sized dose two or three times a day. If that does not control the convulsions I would give a small dose of luminal twice a day. With this one can control almost all the epileptic phenomena, varying the dose to suit the case.

The diet should be quite salt-free. I would also give oil of phosphorus, 1 c.cm. to 100 c.cm. of cod liver oil. This is an excellent remedy. This child needs it for the rickets, for the epilepsy, and, if it had spasmophilia, it would be good for that. The child otherwise seems to be in good condition. It has a good color, is not anemic, and would not require heliotherapy. It has only moderate manifestations of rickets. The treatment of the underlying condition is the problem here.

The first child is more definitely rachitic. It is

hydrated, has poorly mineralized bones with a very moderate calcium content, and the bones are much deformed. Here I would advise, first of all, a radical change in the diet. I would limit the intake of milk to probably a pint and a half a day. I would place this child on a diet containing minerals and vitamins. This means preferably the fresh green leafy vegetables. They should be very finely divided. It should be given a liberal feeding of cereals three times a day. The child should also have a liberal feeding of vegetables three times a day, a tablespoonful of the mashed vegetables, and then a pint and a half of milk. In addition I would give this child a teaspoonful of the preparation I mentioned, the phosphorized cod liver oil. It is an excellent remedy for rickets.

This patient also requires heliotherapy. I usually expose the entire body for five minutes over the back and front, and very soon extend the time of exposure to fifteen minutes, so that they have half an hour morning and afternoon. These three things,—the proper diet, the phosphorized cod liver oil, and the heliotherapy,—would absolutely control this condition within a short time. I think that within two months the baby would be quite different, that it would have good solid tissue and be a very lively baby beginning to walk. There would be regression of all the deformities, and the child could be brought back nearly to normal.

In the third child the condition is undoubtedly congenital. There is something that mysteriously affects this child so that there is almost complete loss of phosphorus, magnesium, and calcium. What can be done for a case like this? So far as I know only the things I mentioned for the other two children, especially the second child, most rigidly carried out and possibly intensified. The child is six years old. With such marked retardation in growth I would not feel very hopeful that the child could be brought back, as can the first child.

A great deal can be done for the child, however. Its diet is very inadequate. The mother nursed the baby for a year and is giving it now an unusually large quantity of milk. When one gives a baby like this such large quantities of milk two things that are not good are done. In the first place, the desire for other food is displaced. In the second place, milk—wonderful as it is—does not contain enough calcium, not enough phosphorus, or enough iron for a child of this age. It is entirely inadequate and produces a marked constipation. What is the thing you must do? You must produce the necessary

mineral in the tissue. There is no muscular tone, no hydration of the tissue, no enzyme function. This all depends upon the metabolic action of phosphorus or the action of calcium. This baby has not got these minerals, and its diet inadequately supplies them. I do not know how much change can be brought about. I would not be too hopeful, but the thing that should be done is to put the baby on the following regime. Intensive heliotherapy, intensive phosphorized cod liver oil therapy, and a diet especially adequate in all the minerals should be the treatment, but how successful it would be I cannot say.

#### CASE IV: ACUTE PURULENT MENINGITIS

This baby has a history of scarlet fever and of an ear complication for five weeks following the attack. There has been a discharging ear for four weeks. When it came into the hospital it had a large red swelling back of the ear, evidently due to mastoid inflammation. On the fifth of May a mastoid operation was performed. You can see the baby in a position with the head extremely thrown back, the opisthotonos position. The baby has a Kernig phenomenon, some spasticity about the extremities, the pupils are widely dilated, and there is every indication of the familiar picture of acute purulent meningitis. Lumbar puncture revealed a cell count of 1,250. There is only one of three things that this could be, either pneumococcic meningitis, epidemic meningitis, or encephalitis. The condition of the fluid would have ruled out the tuberculous meningitis, the epidemic meningitis and encephalitis. We have here a case of pneumococcic meningitis.

You all know the prognosis. There is no treatment to speak of here, and it is only a question of keeping the child as comfortable as possible. Massive doses of chloral hydrate can be given to keep the child comfortable.

#### CASES V, VI, VII, AND VIII: IDIOCY ✓

This first child is rather poorly developed, with some fragile condition of the extremities, very soft muscular tone, a peculiar feel to the muscular tissue—a doughy feeling, as though there was edema. This child is two years and nine months old, and you can notice the peculiar psychic conditions. The head is a little small, and the fontanel is entirely closed. The child has a very good set of teeth, and there is not much decay or erosion. The extremities are very slender, and the child has never attempted to walk. The upper part of the body is better developed for all the activity in this case is above the pelvis. There is no congenital disorder and no history of any constitutional disorder. There



is in the family no history of mental disturbance of any kind. The father and mother are both well. There is no epilepsy, but they are rather young. The mother was not quite eighteen when the baby was born, and the father was just eighteen. The age of the parents is probably unimportant in this case. The only factor of importance is that the parents are first cousins. The father is very temperate. He uses no alcohol and shows no elements of degeneracy.

Of course, what we have here is straight mental deficiency, with a fairly high degree of idiocy. The prognosis is not very hopeful, but the child will probably improve somewhat. The nutrition is not good. The food has not been of the best, and the child probably has had too much milk. These children usually take milk very readily, and the parents give this, although this mother is giving some solid food.

You will always have this experience in cases of idiocy. If they are fed in a way that will mineralize their tissues to the highest degree possible, if their physical condition is improved 90 per cent, their mental condition will be improved at least 50 per cent. This child can be gotten into such a condition that it will take care of itself and attend to its own personal wants. The thing to do, if we are to do anything at all, is to feed the child properly. It must have minerals. In this case I would advise solid food. These children will take solid foods quite well if they are once taught how. They will swallow it well. I would also advise phosphorized cod liver oil for this child. By some of these measures we will improve the mental condition and the child will not be a hopeless idiot.

CASE VI.—This little baby is ten months old. There is a history of a difficult labor with forceps delivery and possibly a birth injury. The baby developed convulsions shortly after birth, and these continued for four days, the convulsions beginning thirty hours after delivery. The blood coagulation time was not taken, but that was about the time that intracranial hemorrhages might have occurred in this case. There is a definite suspicion that the convulsions followed intracranial hemorrhage as the result of a birth injury. No convulsions have occurred since then. The father and mother both have negative Wassermann reactions, and there is not a single instance in the families of any history of mental deficiency. The parents have exemplary habits. There is no history of epilepsy. The baby is on breast feeding at present, with other food.

The baby is not well developed. The muscular tissue is rather soft, the skin is moist, the de-

velopment of the body is symmetrical, the hands and feet are quite normal, but there is a peculiar condition about the head. You notice how the baby falls forward. There is an inability to hold itself up at ten months, indicating poor muscular tone and inability to hold up the spine. It is intelligent, notices things around it and apparently takes an interest in things. It has a peculiar condition about the spine, a tendency to roll out, not to be completely curved and well formed. That is the only indication of some possible congenital disturbance. The fontanel is completely closed. The baby has been kept in a position on the right side with the head turned to the left. There is marked internal strabismus. There is no congenital heart lesion.

The question arises, Has this baby any mental defect or is the baby an epileptic? I do not think it is an epileptic. I think we have here a case of convulsions definitely due to birth injury. If there is any mental deficiency it is of such a nature that proper treatment will entirely relieve the condition. This baby needs a complete change in its food, first of all. It needs to have more minerals in its tissue. It is beginning to show certain evidences of rachitic formation. It has a slight rosary, and the tissues are entirely too soft, but the condition is not so bad as that of the other little fellow I just showed you. This child has fairly good resiliency to the tissues, but not enough.

I would advise a change of diet and would give enough minerals in the way of leafy vegetables, cereals with fruit, a milk mixture not too strong, probably not stronger than two-thirds milk and some diluent with an adequate amount of sugar. We should avoid constipation and should by all means avoid diarrhea. I would want a firm stool in this case. The child should also have phosphorized cod liver oil, and heliotherapy to a moderate extent.

As the child grows older there should be correction of the squint, probably by glasses, and by keeping the child off of its back as much as possible the deformity about the head will be overcome. With the above treatment fine muscular tissue will develop, and everything that seems to suggest a slight mental deficiency will probably disappear. I think a good prognosis can be given in this case. If there is any mental phase it probably will disappear entirely.

#### CASE VII: CRETINISM

This is an extremely interesting case. The little girl is now ten years old. There is a history of normal delivery, the child was breast fed

and has had practically no illnesses except measles. She has walked during the last four years. She has had diphtheria and quite marked constipation. The family history is negative. The mother has had five normal children and two miscarriages.

As you can see, the child has massive development in breadth but very little in length for a child of her age. The skin is extremely dry, the muscular tone is not very good, and the tissue feels edematous—it seems to be almost hydrated. You can notice the broad face, the large square head; the fontanels are closed; the hair is rather abundant but very coarse. The nose is very broad; the eyes set in rather straight. This child is a little more happy than this type of case usually is. Please notice the teeth. They are very large and flat and very far apart. The tongue is smooth, not deeply fissured, not very thick. You notice the character of the voice. It is rather coarse, and deep in tone when she speaks or occasionally grunts. It is the adult type of voice.

There is nothing abnormal about the heart. There is a moderate umbilical hernia, the genitalia are very small, very inadequately formed, the feet are rather thick and pudgy, there is a coarse condition of the nails and a very massive, heavy, unnatural thickness of the feet. There is also a square condition of the fingers, but no hypermobility of the joints.

This is a classical example of the condition known as cretinism. It is commonly mistaken for the condition we have in the next child.

#### CASE VIII: MONGOLISM

You can notice the difference in the mental reaction of these two children. You can see the heavy, stolid appearance of the little girl's face and the quick, alert appearance of this child. He is very fast, very quick, and impulsive, and you can notice a peculiar physiognomy, also the peculiar slant of the eyes, the so-called Mongolian slant. The lower jaw is protruded beyond the upper, and the lower teeth override the upper. The teeth of this child are fully developed and very small as compared with those of the other child. They are somewhat decayed, but he has a very complete set of teeth. The other child, you will remember, has the very wide, flat teeth, widely placed. This child's tongue is very red and deeply fissured, the so-called "beef" tongue. This little fellow tends to manipulate the lower jaw a great deal. The development of this child is entirely different from the other. The hair is fine, smooth, and almost

silky as compared with the other child's hair, which is very coarse in texture. There is a normal consistency about the hair. In this child the bones are rather small. This boy has a better formed ear than usually is seen in this condition. The development of the body is quite symmetrical. The hands and fingers are much more slender than in the little girl. The nails are well developed, but there is a very marked flexibility and hypermobility of the extremities. You can observe how we can take the fingers and bend them backward, practically a double-jointed condition. There is no heart condition in this case, but in many instances these patients have congenital heart lesions. There is no congenital hernia here, although that also occurs in many cases. The genital development in this case is quite complete, the testicles are well down, and the penis is well formed. The tissue does not have a doughy feeling, but is moist to the touch.

In this case the hair is fine, in the other coarse. The tongue is very grossly fissured in this case, very smooth in the other. The teeth are of the canine type with the lower jaw always protruded beyond the upper, slanting up a good deal, while in the other case the lower jaw is rather receding. In the first child everything tends to massive development. She is unusually happy this morning but generally is not so. The patient has been under treatment for some months and is improving.

The boy is quite a favorable type of Mongol, and is better behaved than they ordinarily are. You notice how interested he is, how quickly he sees everything that is going on. The condition of the ear-formation in the two cases differs. The development of the trunk is very different, the thin slender type in this one and the thick, heavy type of the first child. The same thing is shown in the lower extremities. In the Mongol they are symmetrical and are rather stocky in the cretin. The psychic reactions are very different in both children. In the cretin there is a very heavy, stolid, massive mental phase, as if the cares of the world rested upon him. The Mongol is the other way, always rather excitable, and when they cry or laugh they do it very thoroughly and everything they do is done in a quick, impulsive manner.

We have here two entirely different conditions. In the one a disturbance of the thyroid and ductless glands, and in this child a congenital condition which is not quite so well understood. We may have disturbance of the ductless glands in this case too, but usually not of the thyroid.

The prognosis in the two cases is entirely dif-



ferent. Strangely enough, a mistake is often made in the diagnosis. The first child was diagnosed as a Mongolian idiot by three or four different men, but I am sure it is not a Mongol. The cretin is quite rare. The Mongolian type of idiocy is quite common. The cretin is often mistaken for the Mongol, but he really should not be. The two conditions are so different. There is not a single phase that the two conditions have in common, except a marked tendency to constipation. In every other way they are different. The condition of the hair, face, skin, their psychic reactions, their bone development, and the muscles and tissues are entirely different in the Mongol and the cretin. Here we have the rare opportunity of seeing the two conditions side by side.

As to the treatment: In the cretin there is only one treatment,—the use of thyroid gland extracts. This child is getting thyroid gland therapy, but not enough. She should have thyroid extract in as large a dose as the metabolism will permit. Their energy metabolism is always below normal. You can supply the deficiency by giving thyroid. This child with massive treatment with thyroid extract will recover so rapidly that in six months she will not be recognized as the same child. She would walk on the stage, the body would be more slender, there would not be so much of the peculiar pachyderm type of tissue, for that will entirely disappear, and practically every abnormality will clear up. This child can be made practically normal by the use of thyroid therapy. Other measures are necessary, too, but thyroid extract is the chief therapy.

For the little Mongol we can give the thyroid therapy, but if we find the basal metabolism rate high it is well not to push the thyroid therapy because the child will get too thin. It often helps the constipation. With the Mongol it is a question of feeding and giving minerals in adequate amounts, also fats and abundant proteids to give the child good development and growth. Remember that if you improve their development and growth 90 per cent the mental conditions these children show will improve at least 60 per cent.

These little Mongols are very interesting. This child will always remain a little abnormal, even with the most intensive treatment. He will always have the peculiar expression and he will show a little deficiency in regard to school work. They all require special training in school work, but then they do very well. They are the high type of defective child. You can see many ex-

amples in the schools for the feeble-minded. They get angry very easily but get over their fit in a few moments.

Proper diet, phosphorized cod liver oil and heliotherapy is about all we can do, plus moderate thyroid gland therapy largely given to prevent the constipation. Many of the abnormalities in this Mongol will be somewhat permanent, and we cannot hold out as hopeful a prognosis as we can for the cretin.

#### CASE IX

This little boy is four years old and is suspected of being a cretin, but he has nothing that compares with this other child. Notice the nice, symmetrically shaped head and the very good features. He has well-developed hair, fine, of smooth texture, and abundant growth. His hair is absolutely normal. He has a splendid set of teeth, very close together and no decay about them. His nose is a little bit broad, but not at all like the other child. His voice is not deep, but is that of a normal child. He has a nice development of the chest, the skin is moist, and there is excellent muscular tone. There is no umbilical hernia, no dryness of the skin; there is excellent genital development, the testicles are both down, and he has a well-developed penis. The extremities are well formed, and there is excellent psychic reaction. He knows what he wants and shows it in a very intense manner. This child is not a cretin and certainly not a Mongol. I do not know enough about the psychic reaction to say whether there is any mental deficiency, but I think there is nothing very marked. He is probably slightly abnormal and probably needs a very little correction of diet and some slight treatment.

#### CASE X: ECZEMA

This child is now eight months old. It was breast fed for four months and is now being fed entirely on goat's milk, formerly having been fed a mixture of two-thirds cow's milk and one-third water with sugar. Since then the mother has been giving goat's milk. You see a baby that is rather overdeveloped, that has a quite abundant tissue, the weight is probably normal but the tissues are soft and flabby and there is a marked eczematous condition on the body and face, the weeping type of eczema, which itches very intensely.

We have here undoubtedly an organism that has something wrong with its water balance, the tissues probably tending somewhat to hydration.

Then, also, an organism which is not properly taking care of its mineral balance, and an organism that is extremely allergic to different forms of protein sensitization. We have to contend here with an allergic problem and also wrong mineral and water balance. We have the manifestation here of an affection that is very common and extremely troublesome. There is nothing abnormal about the development of the child, and there are no acute infectious disorders of any kind. As a matter of fact, the allergic type of organism is peculiarly immune to bacterial infections, such as respiratory infections, probably on account of a very high degree of eosinophilia.

How should these children be fed? We do not wish to hydrate the tissue. It is notorious that tissues that are hydrated are sensitive to all sorts of local infections, and the second thing is that it tends to the weeping type of eczema. The instant any abrasion occurs the lymph begins to pour out. Consequently, we should concentrate the tissue. We can do this by giving foods rich in minerals and of low carbohydrate content. How do you hydrate the tissue? You hydrate it by giving high-salt and high-carbohydrate food.

I should say that this case would do well if we gave food fairly high in proteins, low in sugar, and low in salts, such as lactic acid milk, or the protein milk very low in salt and very low in sugar, or possibly return to a skimmed milk mixture, or keep in on the goat's milk in a little less strength, and give in addition solid food, making that the chief element in the diet. I have seen very excellent results follow the moment we switch over to the solid type of food. We do not need to think of the caloric value of the food, for it will get enough calories. I would give cereals three times a day, a tablespoonful of fine, mixed vegetable puree and toast three times a day, and not an excessive amount of milk. When giving the solid food six ounces of the milk, and when not giving it eight ounces of milk three times a day would be enough.

In addition, it is necessary to restrain the child from scratching so that it will not injure the skin and produce infection. It never should be kept too warm, but should be kept as cool as possible, and should never have any woolen near the body, always fine silk or soft cotton, and very little clothing. It is necessary to use some local treatment. The use of crude tar is good.

In the older children, and in this case, I would never omit the use of the Schloss allergic tests. They are very simple. You should test for all conceivable things to which an organism might

be allergic, and then avoid, if you can, anything to which the child gives a very positive reaction. If it should happen to be eggs, milk, or meat, or anything of that kind, or something like cat's hair, change the child's diet or environment. While these tests are not absolutely sure they are of great value and, I think, have some significance if they are very positive.

There is another type of case in which the child is thin, the muscle tone is almost gone, there is no hydration of the tissues, and sometimes the most intense itching. This type of eczema is the dry type, and it is really the most difficult to treat. They are frequently allergic. Test them out and after that you must hydrate the tissues, mineralize them, and establish good water balance.

I would give such a patient cod liver oil in liberal doses, and I would aim for weight increase, not by carbohydrate or salt, but by feeding of substances containing minerals. They do better when they gain weight.

#### CASE XI: VOMITING ✓

Here is a baby that is now five months old and weighs a little more than twelve pounds. It has never had breast milk, but was fed Mellin's Food from birth until very recently, and into the Mellin's Food the mother put dextri-maltose. You can see that the child has soft muscle tone. The chest formation is good, the abdomen shows nothing abnormal, and the baby has a bright expression. The bowel movements are now regular.

The principal thing the baby has been troubled with has been the development of gas, no gain in weight, and a tendency to vomit its food. The baby that has to be fed artificially from birth does best, we have found in the clinic at the University Hospital, on one of three things. I will mention the best one first, and that is lactic-acid milk as devised by Dr. Marriott, of St. Louis. Next to that is Holland buttermilk, a similar preparation but containing more sugar and starch; and, third, some diluted milk mixture. Any one of these three food mixtures is better than what this baby got. The Mellin's Food is a milk mixture containing dextri-maltose. I will say that Mellin's Food is quite the safest thing you can use, better than Horlick's Malted Milk or condensed milk, but I would recommend the lactic-acid milk of Marriott or Holland buttermilk, and, lastly, dilutions of milk in one-third up to one-half strength for a child of this age.

This baby is now being fed a milk mixture containing hydrochloric acid. This is being used not extensively, but is based on a knowledge that



we had gained experimentally, that the buffer value of cow's milk is what makes it indigestible and unattractive to the stomach, and what causes all the indigestibility of the cow's milk. Marriott has brought this out in his work. If you acidify the milk this is overcome. In my own experience it is a food of rather limited value, and I rarely resort to it. I am much impressed with the lactic-acid milk, and I use it to the exclusion of everything else in the artificial feeding of infants. It is peculiarly acceptable to an irritable stomach where a tendency to vomiting is present, as in this case. This baby vomited its food, but otherwise there was nothing abnormal about it. It is not a pylorospasm. Lactic-acid milk should agree well with this baby. Sugar can be added to it, even to 20 per cent, but I hardly think so much will be necessary here, certainly not if the baby is doing well. These babies will sometimes gain as much as 100 grams a day, but I would be content with a gain of 40 to 60 grams. Buttermilk would not be so good in this case on account of its high carbohydrate content. Cow's milk is last on the list.

The moment this baby is six months old it should be put on solid food.

#### ✓ CASE XII: PYLOROSPASM

This baby is nine months old, and there is nothing abnormal about the history, except that from the fifth month it has been vomiting its food. The food just seemed to roll out. The mother was then giving a milk mixture, and all the food apparently was returned, not with a projectile form of vomiting, but just spilling out. One peculiar thing about the baby led to a diagnosis which we do not ordinarily make. It was observed by the mother that it assumed a peculiar motion, with the head sunk down in the neck just before the vomiting occurred. It also sucked its thumb a great deal. We know that in cases of pylorospasm we must avoid the sucking reflex as much as possible. If an infant sucks on the bottle or its thumb that sometimes tends to create a whole string of reflexes which reach down to the stomach and cause the stomach to reject the food. The stomach will bring liquid food up very easily, whereas the solid food is rejected with difficulty.

Our whole therapy is based upon this physiological fact. In periodic vomiting in the older children it is well to remember this behavior of the stomach. If you start in with broth after the child has vomited for three or four days the parents will call you up and tell you that the child has started to vomit again, but if we give it thick

Cream of Wheat pap, with sugar, or any solid food it will stay down; not a bit will come back.

This baby had the peculiar phenomenon which I have described. The question was whether it was a pylorospasm or a pyloric stenosis, or was the child a ruminator. I have not observed the baby and do not know how to interpret the peculiar phenomenon described. The child was treated by some excellent men in Minneapolis and they diagnosed it as a ruminator. I do not wish to question their diagnosis, but I know that ruminators are very rare. I have seen only two cases in sixteen years. I have not seen the condition in one so young as this child, but I saw it in a child of three who persisted in it until she was six, just as she was going to shed her deciduous teeth and get her permanent ones. This child was so bad that even with a guard over her she would escape in some way and get the food up into her mouth and chew her food over again. It was a disgusting affair, and she completely denuded her teeth of all enamel. She got into very poor condition and was pale and emaciated. This is just one of those inconceivable things children will sometimes do. The condition is difficult to correct. I tried all sorts of things with the child. I dieted her, giving nothing but solid food, and I tried in every way to overcome it, tied up her jaw and tried every form of correction and punishment. Then suddenly, as out of a clear sky, she stopped it and is now a well-developed girl of fifteen. Such cases are exceedingly rare.

I am a little bit dubious about the correctness of the diagnosis in this case. Cases of pylorospasm or stenosis are quite common. In a case of persistent vomiting we always hope to have a pylorospasm, and not a stenosis, to deal with, because pyloric stenosis is very difficult to treat. A case of pyloric stenosis should be brought to operation as quickly as possible, and no time should be wasted in trying to treat it otherwise. The condition in pylorospasm is quite different. We can accomplish everything by feeding and should not think of operation.

The treatment in this case was the one usually given a baby with pylorospasm. First, the lactic-acid milk. This child got this milk by tube, which was a good procedure as it cut out the sucking reflex. The moment the milk stayed down quite well an attempt was made to feed solid food. I should have been inclined to attempt that from the beginning along with the lactic-acid milk. I should have given the lactic-acid milk one time, and at the next feeding some solid food in high concentration, preferably the

cereals, but anything in the way of solid food, if finely enough divided, will do. One should also give massive doses of atropin. Always use atropin in any abdominal case where there is vomiting and a suspicion of pylorospasm or pyloric stenosis. Always use atrophin up to the physiological effect. I have sometimes used cocain hydrochlorid, but it is not as useful as atropin.

This baby was restrained so that it could not make the movement and the men in charge were impressed with the fact that the baby stopped making the peculiar head movement. I am inclined to think that the improvement was due to the change in food, for it was getting the acidified milk and solid food. Had this baby not reacted to that treatment my next move would have been to use the thick cereal food of Sauer, the mixing and cooking of a cereal, such as Cream of Wheat, with breast milk or with cow's milk. This is very effective feeding in cases where there is persistent and continual vomiting. It is the most successful type of feeding in a medical way with pyloric stenosis, although, as I have said before, I should not waste much time in feeding cases of pyloric stenosis but would proceed quickly to operation.

The baby is now in excellent condition, takes a large amount of solid food, a liberal amount of lactic-acid food, and is in every way normal.

#### CASE XIII: BED-WETTING (ENURESIS) ✓

This little boy is four years old, and the mother brings him in because of bed-wetting. Otherwise, the history is quite uneventful. There has been no severe illness, although the boy has had rather frequent attacks of tonsillitis and head colds, but, aside from that, he has had no other acute illness. He is a nice little fellow, very bright and intelligent-looking, but you can observe that he has a very marked Harrison groove, a rather long, barrel-shaped chest, but is not rachitic. He has very large tonsils and considerable adenoid tissue, although he is not a mouth-breather. The muscle tone is soft. His urine was absolutely negative in two examinations.

In these bed-wetters there are three things to determine immediately: first, the physical condition; second, make sure that they do not have a pyelocystitis. Bed-wetting is a very common symptom of pyelocystitis. One should make at least a dozen urinary examinations and be sure that this condition is not present. Third, make sure that there is no tuberculous trouble, particularly if the child is very asthenic in type. I am sure this child has not that infection. The

family history is negative. We are very probably dealing with a neurotic disorder in this case.

There is no Chvostek phenomenon, no spasmophilia, and the deformity of the chest is unquestionably due to the throat infections. The mother has always noticed that there is much more urination and more tendency for the child to wet himself during the day and to wet the bed at night when he has a head cold or tonsillitis.

These neuroses at times are rather troublesome, but I have had some excellent results with the following line of treatment: Immediately clear up the infection in the nose and throat. The boy should have a tonsillectomy and adenectomy without delay, and then one should pay attention to his diet. He should not have much liquid, but should have a solid diet. His diet should be concentrated during the entire day, not from four o'clock on. Then I would have the mother exercise a certain course of training with him. His mother should be with him when he passes his urine and should have him start and stop the flow. This exercises the sphincter muscle of the bladder and is excellent, and a third measure which I think is of much value is hydrotherapy. I would give him a hot sitz bath for ten minutes and then have him stand up and dash cold water against the back. A fourth measure in obstinate cases is the use of the faradic current passed over the back. That is suggestive therapy, and it works exceedingly well in these cases. I have never been able to secure the results Hamburger gets by the use of coercive measures, but the four or five measures I mentioned are always helpful.

The next thing is the medical treatment. If the case has a pyelocystitis we must, of course, always treat that condition first. I use a belladonna preparation. Hyoscyamus happens to be my favorite, with hexamethylenamin and sodium benzoate. This mixture gives very good results. If it does not control the condition I add to it atropin sulphate in massive doses. With those two remedies and the five other somewhat suggestive agencies, I believe we can improve or control practically every enuresis case, unless there is a spina bifida present.

#### CASE XIV: CONGENITAL HEART ✓

This child is four years old, and there is a history of a normal delivery, but it was a blue baby. The child walked just about one month ago. It has talked for several years and has played with other children and is in every way bright. The child has a congenital heart, but of a favorable type. It is not a severe case and has



probably only a moderate amount of trouble. I think there is no abnormality about the insertion of the pulmonary artery, and it is a type of congenital lesion, which, with proper feeding and careful guarding against infections, particularly of the upper respiratory tract, will give little trouble. The underdevelopment is entirely due to the inadequate heart circulation. The development of the child's organism has adjusted itself to the heart condition. The fact that there has been no cyanosis since birth is very favorable, and I would give a favorable prognosis. It is simply a question of proper feeding and getting better development.

I dare say this child is not getting sufficient solid food, not enough minerals and the things that produce more growth. It is not a question of treating the heart in these cases, but rather a question of adequate feeding. The child must be fed more quantity and more concentrated food.

#### CASE XVI: DIPHTHERITIC PARALYSIS

This child had a very severe diphtheritic infection, and the paralysis developed three weeks afterwards. It first developed paralysis of the soft palate and inability to speak, and then there were paralytic manifestations in the legs, with difficulty in walking. That is the usual sequence

of postdiphtheritic paralysis. We see it in a severe type, as a rule, but it can occur in a mild type. It first produces paralysis around the soft palate, then the limbs are attacked, and there is a gait very similar to the tabetic or ataxic gait, which this girl has. There is the peculiar tendency to stamp the foot down. The trouble is an infection of the nerve sheaths and if it is very severe we have degeneration of the axis cylinders. It next affects the chest muscles, then the larynx, and, finally, the diaphragm and heart.

The treatment in these cases is large doses of antitoxin. Nothing short of 50,000 to 60,000 units, and I would repeat this and give 100,000 or 200,000 if necessary. The child must be constantly watched, not alone because of the progressive tendency of the disorder, but because it is threatened with involvement of the vagus nerves and the resulting consequences. One should give strychnin sulphate in fairly generous doses, and, if there should be sudden heart failure, I would inject into the heart cavity itself 15 c.c. of adrenalin chlorid solution. It has at times saved life.

The prognosis is favorable in this case. The child will regain a normal gait and will doubtless regain the normal use of her limbs.

## ORTHOPEDICS: A CLINIC\*

BY WALLACE COLE, M.D.

Chief Surgeon Shriners Hospital  
ST. PAUL, MINNESOTA

Mr. President and Members of the South Dakota State Medical Association:

I have been able to find a number of good old-fashioned orthopedic cases of the type we see right along, and which are frequently untreated or maltreated, and these cases will give us a chance to go over some of the points that I feel are very important.

#### ✓ CASE I: CONGENITAL CLUB-FOOT

This baby is eight months old and was born with a very definite congenital club-foot on the right side. The mother states that it was present at birth. We can also see other congenital anomalies. There are only four toes, and the *x-ray* shows that there are only four metatarsal bones. The child is so small that it is impossible to tell about the tarsus because the centers of ossifica-

tion are not yet formed. On the right we can see an appendage rather than a toe, and, although the *x-ray* shows five metatarsal bones, it is abnormal.

The cause of the club-foot is not due to any anomaly in the tibia and fibula, which sometimes happens where there is mal-development. This child has been treated with plaster-of-Paris dressings, and the varus deformity has been overcome so far as the heel is concerned, but there are still marked deformity of the sole and the front of the foot and marked abduction of the front of the foot. The treatment was just what was indicated, but it was not started soon enough. Some men will tell parents that they should wait until the child is a year or eighteen months old, and then have operative treatment. The treatment of congenital club-foot should start the day the child is born, for the best results are secured in this way. I have had half a dozen cases which

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.

I have seen on the day of birth where the results have been absolutely perfect, as we would expect. During the first few days after birth we do nothing but have the nurse or the mother hold the foot around in as straight a position as possible, as often as possible. After a week or ten days we make a light plaster-of-Paris splint and hold the foot around in as much correction as we can obtain. We continue to have the mother hold the foot around as much as possible every day and have the child wear the splint all the time between. When the splint no longer holds it in the corrected position a new one should be made, and at the end of six weeks or two months you will find that you can start in with circular plasters. Even if you correct the deformity of the foot entirely you will frequently find that the foot and leg are internally rotated below the knee. To correct this, the plaster should be run above the knee with the knee at a right angle so as to get a fixed point upon which to rotate. After several months I think it is well to remove the plasters for two or three weeks. Get the parents to massage the leg or, if possible, if you have someone doing massage and physiotherapy get her to do it.

The plaster has been removed on this child to-day, after six months, and the mother has been instructed how to manipulate the foot at home. After three weeks the child will be brought back, and the correction will be continued.

The biggest group of cases we have here to-day is a group of children suffering from residual infantile paralysis. They will demonstrate several things, and I think will outline briefly the therapy of infantile paralysis, because almost everyone sees them in the acute stage, and if they are properly treated at that time the treatment of the final stage is much simpler. We have, in the Twin Cities, acute cases which occur every summer. In the hospital work, where the more chronic cases are seen, such as the ones we have here to-day, the thing that is particularly noticeable is that most of the patients when they come in have some deformity already developed.

The point I wish to bring out emphatically is that if these patients are treated properly from the beginning the deformity can be prevented, and the work we have to do to cure the deformity will not be necessary. The treatment must start as soon as the paralysis sets in, and that treatment is rest of the paralyzed muscles. By rest I mean keeping them relaxed so that they are not stretched. If, for example, the bed-clothes rest on top of the foot when we have paralysis of the anterior muscles of the leg and

foot we get a stretching of the paralyzed muscles. The foot should be held at right angles with a light splint so as to keep the muscles at rest. You also accomplish by this prevention of deformity. These paralyzed feet, and this is true of paralyzed parts all over the body, tend to become deformed. If the foot is allowed to stay in a deformed position for many months the muscles and ligamentous structures become contracted, bone malformation takes place, and there is a resulting fixed deformity for which it is necessary to do much surgery before one can get the foot into good position. All this can be prevented by keeping the muscles relaxed and at rest. There is a point which is frequently overlooked in paralysis, and that is that one can get paralysis of a muscle by stretching it. We often find muscles paralyzed from becoming stretched, from poor position of the parts during the acute stage of the disease, and it is only when the over stretching is corrected, sometimes after many years, that power returns.

#### CASE II: INFANTILE PARALYSIS

This girl is eleven years old, and she had an attack of infantile paralysis at three years of age. You can see that it has left her with paralysis and deformity which involves the left lower extremity. She is also said to have a slight deformity of the spine as a result of the paralysis.

When a case of this type comes in, the first thing we want to know is whether there is any fixed deformity and what muscles are paralyzed. She walks very well, and we can see that the hip is not involved. We can see that the quadriceps is good and that her inner hamstrings are good, although the biceps is very weak. As she walks and as she lifts the foot we see that it goes into valgus. We know that when the foot is pulled out of shape into this everted position, the anterior tibial muscle and the whole posterior tibial group of muscles are probably paralyzed. Examination of the individual muscles bears this out. The other muscles are all active and in good condition.

What is the treatment indicated for a foot like this? She has developed some actual, permanent deformity. When she steps on the foot she has a marked static deformity, but this has not become a fixed deformity. The foot under strong pressure can be brought just to a right angle. She walks on the heads of the metatarsals, especially the head of the first metatarsal, and operative treatment is indicated.

Operative treatment of infantile paralysis has run wild during the last ten or fifteen years. At



first many tendon transplantations were done, but at present we know there are only three or four that are of use. In doing tendon transplantation we have to have a foot with so little paralysis that we have plenty of material to work with. In a foot of this type with the posterior and anterior tibial muscles gone it cannot be treated with tendon transplantation satisfactorily. We can always make a tendon transplantation work for a while, but when the patients get up and walk around and put strain upon the foot the deformity recurs except in a small group of properly selected cases. We see cases all the time that have been operated on and are worse than before because there is less to work with at the present time.

The inversion and eversion of the foot takes place mostly in the subastragalar joint; that is, it takes place between the astragalus and the os calcis and the astragalus and scaphoid bone, so that the treatment that is accepted almost universally in feet that tend to roll out or in is arthrodesis, or stiffening of the joints beneath the astragalus, so that when the patient steps on the foot there is no lateral motion, but only the hinge motion of the ankle joint proper. In this case we also have the dropping of the heads of the metatarsals and the hyperextension of the great toe, and to a lesser extent the other toes. Dr. Hoke, of Atlanta, has devised an operation for arthrodesing the subastragalar joints, which also allows a partial posterior dislocation of the foot so that the tendency to foot drop is minimized. It is the general consensus of opinion that children should be nine or ten years old, or older, before any arthrodesis is performed, as it is not until then that enough bone is formed to guarantee an ankylosis. I understand, however, that Dr. Hoke is performing his operation on children as young as five years.

In a girl of eleven, well developed like this girl, such an arthrodesis is absolutely indicated. Here we must stretch the foot into position first. She has so little fixed deformity that I believe we can get the foot in good position without any tenotomy of the Achilles. This can be done by stretching in plaster of Paris and with physiotherapy. We never have too much good muscle in a paralyzed foot anyway, and if we unnecessarily weaken our Achilles by tenotomy we shall not have the strength in the foot that we should have.

#### CASE III: CONGENITAL CLUB-FOOT; INFANTILE PARALYSIS

This child has a rather interesting history in

that it is stated that the child was born with what was apparently a congenital club-foot, and then the history seems to show that when she was six weeks old she had an attack of what was diagnosed as infantile paralysis. Of course, the same patient can have both. I had a very interesting case last year of a boy with progressive muscular atrophy who had an attack of infantile paralysis when he was six years old, and who had the progressive muscular atrophy and the infantile paralysis, a combination which is very rare but entirely possible.

You saw as this patient walked that she has very marked flat-foot. The arch is absolutely down and flat, and she walks with the foot in valgus. The x-ray picture shows the condition with the tarsal bones down flat on the floor, as you would expect from seeing the foot. I do not know whether there is any definite paralysis here or not, but I believe I get power in all of the muscles, except the posterior tibial. The anterior tibial is certainly strong; it is difficult to make sure of the posterior tibial, but I think it is gone and probably that is the reason we have the marked eversion of the foot, with flattening of the arch. As yet the foot is fairly flexible. She has, aside from the paralysis, a condition which we sometimes see in cases with congenital club-foot which has been over-treated, a flat-foot.

The indications here are to try to cure the deformity first. It is a rather flexible foot. I can feel the bones slide and a little grating as I push the arch up. I feel that with proper support under the arch, in the form of a pad, the foot can be pushed up and kept in position, and when it has developed a little more it may not be necessary to do anything more than to keep the shoe built up a little on the edge to prevent eversion. She is being treated at present with an outside iron. I do not know whether she has an inside T-strap or not, but that would be the indication. With the inner edge of the shoe raised one-quarter inch, with an outside iron and an inside T-strap and a pad in the shoe under the arch to keep the arch in position, we should be able to keep this foot in good position, and later we can decide whether or not it is necessary to do any operating. I think we can get a good foot here merely by conservative treatment.

#### CASE IV: INFANTILE PARALYSIS

This boy is twelve years old and had infantile paralysis when he was five years old, without any apparent bad results until recently, when he noticed that his back had started to curve, and he has been getting into the position you see,

with one shoulder higher than the other. He has developed a curvature of the spine which is said to be due to infantile paralysis, but which we cannot confirm without making muscle tests.

These back cases are important because the worst deformity we get in the hospitals is scoliosis, or curvature of the spine. These curvatures in infantile paralysis are due to the fact that the muscles on one side of the back are involved while the others are not, or because one side is more involved than the other. The mechanism of the spine is such that we cannot have a simple curvature for a long period. A complicated curvature must develop with rotation of the vertebræ. Although the scoliosis is due, in infantile paralysis, principally to paralysis of the muscles of the back a contributory factor is frequently a shortened leg.

Infantile paralysis, when it involves an extremity, causes certain trophic changes, which cause a retardation in growth. A child walking with a shortened leg will have a tendency toward scoliosis due to the fact that the leg is shortened and the spine has to bend to conform to this. We have in this case about two inches of shortening of the left leg. You can see that the pelvis is tilted as the boy stands, due partially to the shortening and partially to the curvature. You can notice that I can partially overcome his curve when I change his balance by lifting up his shortened leg and getting the correction. The deformity of scoliosis is so complicated that it is impossible to go into it here, but you can see the S-shaped curve, and that, as he bends forward, one side is more prominent than the other because of the bodies of the vertebræ toward that side. The treatment will be brought out in the discussion of the following cases.

#### CASE V: INFANTILE PARALYSIS

This boy is twelve years old and at one and a half years of age he had what was probably an acute infantile paralysis. He had an acute febrile attack which left him with involvement of the left lower extremity. As he walks you can observe that he limps, from the shortened leg, and you can see that the left leg is much smaller than the right, due to the paralysis and atrophy of the muscles. The quadriceps and hamstrings are active and strong, but the thigh is not as strong as on the opposite side. In the foot we have a very typical deformity which, when he walks, makes him bear his weight on his heel. You can see from the dirt on his heel that all the weight is there, and he wears the heels of his shoes off. This is known as the calcaneovalgus deformity,

which is due principally to paralysis of the muscles of the calf. He also has a paralysis of the posterior and anterior tibial muscles. He has a very definite shortening, and you can see from his gait and the way the foot hangs that the leg is shorter than the other.

We also see the underdevelopment of the foot, the right foot being much longer and larger than the left. This is the foot for which Whitman devised his astragalectomy. Through a lateral incision the astragalus is completely removed, and then the foot is dislocated backward so that the malleoli grab the metatarsal region of the foot. When this is properly done there is no lateral motion of the foot in eversion or inversion and only a small amount of motion in extension and flexion. I believe this operation is still the best for a foot of this type if it is done on both sides. We cannot help increasing the shortening by taking out the astragalus, and I believe there are operations which are better for feet of this kind where only one side is affected. For both sides I know of nothing better than the astragalectomy, when well done. The malleoli are ordinarily placed toward the back of the foot, but, if they can be brought up here (indicating), we can get a stabilization which we cannot get with them in the usual position.

In this particular case the subastragalar arthrodesis of Hoke is indicated; with the stiffening of the joints and sliding back of the os calcis and foot to get the parts stabilized, the weight comes more over the center of the foot, and therefore also tends to flatten out the arch.

#### CASE VI: CEREBROSPASTIC HEMIPLAGIA

This boy is seven years old and complains of a short right leg, inability to use the right hand and arm, and inability to button his clothes with the right hand. When he was three years old he had the "flue." Nothing in particular was noted until his first year in school. We have here a condition which is not infrequently confused with infantile paralysis. The latter is strictly a motor paralysis in its final stage, although in the acute stage it sometimes spreads to other regions of the central nervous system. The end-result is that some of the cells in the anterior horns of the spinal cord are destroyed, and we have a flaccid paralysis, with the reflexes gone. In the condition that we see in this patient the lesion is in the brain, and, therefore, the reflexes are exaggerated and the muscles are tight and spastic and not flaccid as in infantile paralysis. In the questionnaire which is sent out from the Shriners Hospital this question is asked:



"Are the reflexes normal, increased, or diminished?" Many times the answer comes back that the reflexes are increased although a diagnosis of infantile paralysis is made. This immediately tells us the diagnosis and the history in this case shows that the same mistake was apparently made as the child was thought to have infantile paralysis.

First, we have a normal boy up to a certain age, then there is a history of infection, and then inability to use the arm or leg. We can see the position in which the hand is held and note that it is not flaccid as in infantile paralysis, but is stiff, spastic, and tight.

You notice that the hand is held in pronation. It is difficult to demonstrate the stiffness to you, but one can feel the resistance always. The reflexes here are exaggerated, and the same is true in the lower extremity. It is a spastic condition due, undoubtedly, on account of its distribution, to a lesion in the cortex or in the corticospinal tracts. There are no permanent contractures, such as we often get, and the muscles are not paralyzed in the ordinary sense of the word, but there is lack of normal control of the muscles from the higher centers.

It is a very mild case of cerebrosplastic hemiplegia, and one in which very little treatment is indicated. The only treatment that could be given with any hope of improvement is intensive muscle training to develop the supinators and weaken somewhat the flexors and pronators. This cannot be done at home successfully, and can be accomplished only by trained workers. In a mild case such as this, with no contractures, I think there is no use in attempting treatment at this time.

#### CASE VII: PARALYSIS OF THE KNEE; FOOT-DROP

This boy is eight years old and complains of shortness of the left leg and a foot-drop. He has had two operations on the foot. I am not sure what was done at one of the operations, but we can tell something by the incisions. The knee is paralyzed, so far as extension goes. He has some power in the internal hamstrings, but the biceps is gone. It is a question whether anything should be done to a foot where the knee is paralyzed. In order to support the knee we have to put on a long leg brace. Otherwise, these patients walk with their hand on the knee, or later the knee becomes hyperextended. Where there is deformity of the foot so that it will not stay straight in the shoe one has to do something to stabilize it, but I think where a patient has to wear a brace on the knee there is no use in trying

to do anything to the foot if the brace will hold it in good position.

In this case the first operation was apparently a tendon fixation, an operation which has been popularized by Gallie, of Toronto. Probably the tibialis anticus and the extensor longus digitorum tendons were buried in the tibia so as to act as ligaments or guy ropes holding the foot at a right angle. A great many of these cases have a recurrence of the deformity probably because the tendon slides in its new attachment to the bone. This foot apparently was at a right angle to start with, and now we see it is far below that point.

The second operation was an astragalectomy, but the foot was not dislocated back far enough, so we have a foot that still has some lateral motion. You can see the normal foot and the foot with the astragalus removed. It is not difficult to get these feet into good position by astragalectomy if we remember that the dislocation is the big thing. This foot at present is, however, in a surprisingly good condition, and when the weight is put upon it we see a fairly good weight-bearing line, and it does not tend toward any great eversion. It can be held well in the brace and in this case I would advise not doing anything more with it in the way of operation, for the boy will have to wear a knee brace anyway. The biceps is gone. If it were strong it could be transplanted to the patella partially to make up for the paralyzed quadriceps. This is one of the most satisfactory tendon transplantations that is done, but, of course, it is not indicated in this case.

#### CASE VIII: INFANTILE PARALYSIS SCLIOSIS

This little girl is ten years old and had infantile paralysis at the age of two. You can see the marked deformity which has occurred. The most marked deformities we have following infantile are in the spine, and I think you can see in this case that this is true. As I have mentioned before, the very marked scoliosis and deviation of the spine is mainly due to paralysis of the muscles of the trunk. Apparently in this case the lower extremities are in good condition.

What can we do for a case like this? It is impossible, of course, to completely cure the deformity. It is possible if we see the case at the beginning of the disease to hold the back straight and prevent deformity of this kind, but, unfortunately, it is very hard always to keep such cases under observation, and they frequently get away from us. In this case the first thing we have to do is to limber up the spine and get as much

movement as possible. This child has a marked deformity of the thorax as the result of the ribs being attached to the spine, and she is sure to have trouble with her vital organs later unless we can get them into better position. She can be greatly improved as an institutional case, but very little can be accomplished by office treatment.

The first thing we do is to use suspension daily until the children can stand it for twenty minutes. During the same time they are given massage and manipulation and stretching of the contracted parts in an effort to get them as straight as possible. Of course, in these cases we must get rid of gravity, for it is pulling them down all the time. Recumbency is absolutely essential. Until the last few years these cases were always treated with jackets. They were made as straight as possible and then a jacket of leather or celluloid that held them in the corrected position was applied, but at present I think the best thing to do is to ankylose the spine after the maximum degree of correction has been obtained. The operation is the same as that performed for tuberculosis of the spine, and the fusion of the spine by the method of Hibbs is, I think, the best procedure. This child should remain in a hospital for several months and then, after the preliminary loosening up, have a fusion performed.

#### CASE IX: SCOLIOSIS

This girl is sixteen years old, and the curvature of the spine dates from the age of nine. At that time she had scarlet fever, was in bed for one month, and the curvature was noticed after she got up. I doubt if the scarlet fever had much to do with the condition. I think the trouble is due to some congenital deviation, which was almost unnoticeable but which gradually made the spine assume the curved position. You see here the very marked lateral deformity and the marked rotation. The spinous processes are down in here (indicating), and this prominence is a sharp angulation of the ribs on the side of the deformity. The bodies of the vertebræ always rotate toward the side of the curve and, therefore, make the ribs or spinous processes more prominent on that side.

What can we do with a deformity of this kind? These cases are very unsatisfactory from the therapeutic standpoint, but I think we could improve this curve a great deal by means of corrective measures. The method which was started by Mackenzie Forbes, of Montreal, probably is the most satisfactory, although you will find a wide difference of opinion regarding it. It con-

sists, briefly, of repeated plaster-of-Paris jackets applied with rotation of the body toward the side of the deformity, so the pressure on the ribs will tend to push the spine around into a better position. The jacket is put on with the child in flexion, on a hammock, with the pelvis held fixed and the shoulders rotated toward the side of the deformity as far as possible. Sometimes they rotate for 90 degrees. Then with a big window cut over the hollow side, with pressure over the convex side, every breath that is taken tends to push the hollow side out through the opening.

A thing to remember in treating scoliosis is that we must constantly work on the muscles. A definite system of exercises is carried out even when the plaster jackets are on and when the maximum correction is obtained a permanent jacket is applied and worn until the patients reach their growth. Ankylosing the spine by operation is also used by some men in these cases instead of permanent jackets.

#### CASE X: TUBERCULOUS HIP JOINT

I am making a collection of cases that have come into the Minnesota State Hospital for Crippled Children and into the Shriners Hospital, where the patients have had previous treatment that has been of no value. Many of these cases of infantile paralysis have had recurrence of deformity from some cause, and, therefore, all the hospitalization and the work done was an absolute waste. The same is true of tuberculosis of the joints. We have a lot of cases of that condition, of which this boy is an example. Patients are seen right along with tuberculosis of the hip who have been under treatment in a hospital for many months or even years and have been discharged with the hip in a straight position, but who come back later with the thigh flexed and adducted again. Practically everything done has been wasted. I feel very strongly that where one has a tuberculous joint and there is already destruction of that joint and we know that ankylosis is going to occur, the quicker you get that ankylosis the better it is for the patient and the better for the disease. The ideal treatment, however, for the tuberculous hip joint in the early stage, without much destruction, is mainly light traction by means of a weight and pulley, absolute recumbency and, of course, the heliotherapy of which you have heard so much the last two days. It is not necessary to discuss heliotherapy again, except to emphasize the point that it is a very indispensable thing in the treatment of a tuberculous joint.

Active tuberculous joints always show a marked



absorption of mineral salts, or, in other words, atrophy of bone, in the *x*-ray which you can see in the picture (indicating) of this case. It has been shown by many observers, by Rollier in particular, that as these cases progress toward cure and pick up in body weight and in general nutrition, the mineral salts are redeposited in the bones making up the diseased joint, and the progress of cure can be followed thereafter by the *x*-ray. The early pictures of this case are rather indefinite, but the process apparently started in the acetabulum, and at present we see the diseased hip with the head of the femur pushed up on the ilium and with destruction of the acetabulum.

As I understand it, this is a case where the hip was straightened, the patient was sent home, but returned later with the hip flexed again. We have joint destruction, and the cartilage is gone. We know we shall get a stiff joint. We know the disease is active because it has been only within the last year that the marked destruction has taken place. What is the ideal treatment to pursue in this type of case? In the first place, heliotherapy; in the second place, traction on the joint. Fixation is also used to a certain extent in these cases, but we cannot use heliotherapy with the body covered with plaster, so traction by weight and pulley is to be preferred.

In these cases I think we are coming to the surgical treatment very rapidly, especially where the financial condition of the parents is such that the patients cannot be kept in the hospital for several years. Where the destruction is already as marked as in this case we know the joint will be stiff. Why not, therefore, open up the joint, clean it out enough to get the bare bone of the head of the femur against bare bone of the acetabulum, and thus get ankylosis quickly and save many months of hospitalization. The good position for ankylosis in a hip joint is, of course, abduction to make up for the actual shortening, which usually takes place, as it has already in this case. In a case where we still have good cartilages the treatment of choice at the present time is recumbency, traction, and heliotherapy.

It is surprising how many tuberculous joints come into the hospitals that have had long periods of previous treatment. Cases that have been sent home at the end of two, three, or four years of hospitalization with apparent cures and with apparent ankylosis, come back later with marked deformities, due to the fact that the ankylosis is fibrous and the pull of the muscles makes this fibrous ankylosis change position. We must get

an absolute bone ankylosis to get the best possible results.

#### CASE XI: COMPOUND FRACTURE WITH NON-UNION

This man, four months ago, sustained a compound fracture of the tibia and fibula about the junction of the middle and upper thirds. The wound cleaned up but did not heal and has remained open until at present there is just a slight amount of discharge. The soft parts have practically healed at the end of four months, but the bones are still ununited. This *x*-ray picture (indicating) is the one taken originally and this one (indicating) is the one taken to-day, showing that there is non-union and atrophy of bone, but that the bones are in fairly good position. The case then is one of compound fracture of four months duration with non-union and with a discharging wound which has almost healed, but which is still open.

What is the treatment to be? In the first place we must get rid of the infection. This wound is drying up, and I feel that it will entirely heal, although a small piece of bone may come out. The picture taken to-day shows a small piece of bone which is denser than the rest of the bone and is apparently, therefore, dead. This may be extruded or may have to be lifted out. After the open wound is healed and after we know we have an ununited fracture, for as yet this can only be called delayed union and not non-union, the tendency to do something right away should be discouraged. The routine in war hospitals in such cases is to wait at least six months after the infection has stopped before going in. Some of these cases will, in that time, have healed in good position or will have united without doing anything further. A certain percentage, especially in the tibia, will not unite, and it is then necessary to do bone grafting. If during the six months we can give massage and induce hyperemia we shall get a bigger percentage of results from bone grafts as the infection will be more surely obliterated. If there is a great deal of scar tissue it is best to dissect that out at a preliminary operation and then do the bone graft later.

This case is in good position except for a slight bowing which can be easily corrected by the next plaster. The future treatment should be support in plaster and, if possible, to get the man to walk on it and thus stimulate bone growth and union. Then at the end of six months a bone graft should be done if union has not taken place before that time. I feel that in this case we probably will get union.



W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

H. J. ROWE, M.D. - - - - - Minneapolis  
(For North Dakota)

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

OCTOBER 1, 1924

## THE CHILD'S GUIDANCE CLINIC

The Child's Guidance Clinic which has been established in Minneapolis with a branch in St. Paul, is one of the few clinics of its kind in the United States. In some sections of the country such a clinic is known as a "psychiatric clinic," but it was felt in Minneapolis that here the above name would be more appropriate. With Dr. Lawson G. Lowrey at the head of it, it has prospered amazingly. Dr. Lowrey has organized one or two other clinics in the country, and is to leave about November first to go elsewhere, as he is looked upon by the Commonwealth Fund as an organizer of unusual ability. He has certainly made the people of Minneapolis and probably of the entire Northwest interested in the subject of the careful history-taking of families with a study of their social, economic, and more or less spiritual problems, and it is interesting to note that the *Minneapolis Journal* has been publishing for some time a column devoted to the character of the work under Dr. Lowrey's supervision.

In spite of the fact that many of these people, mothers and children, who come to the Clinic for advice are known to be among the almost hopeless type,—that is, they belong to the low average in mental rating,—much good has been accomplished by an analysis of their physical methods of living and of the parents' method of dealing with their children. Dr. Lowrey has demonstrated to the parents the urgency of a complete physical and mental examination, including a study of environment, heredity, and the child's

attitude toward life, and lays stress on the necessity of obedience, proper and regular methods of living, of food supply, and the correct idea of discipline. This discipline does not extend alone to the children, but to the fathers and mothers. It is very generally known now that the parents are mostly at fault for the incorrigibility of the family; the father and mother have no self-discipline, doing as they please, and they often please to do things they should not do, and these self-indulgences are exposed to the full view of children who are impressionable. No one can expect children to grow up with a proper sense of responsibility or right thinking where undisciplined parents are in control. The fact is that most of the faults of the children, even among the partially defective classes, are due to the indifference and irresponsibility of the parents. But this has been proved true among families that are supposed to have greater intelligence and better ideas of their living surroundings, so that even among the rich the parents are virtually responsible for the conduct of their children.

The old term "psychology" has taken on a new light, and is interpreted by the Clinic as "the science of behavior." Whatever is done for the correction of a child includes the sincere and hearty co-operation of the father and mother; and Dr. Lowrey and his associates have been instrumental in giving the child, as well as its parents, an entirely different outlook on life. The Clinic finds that many of the children coming under observation are bad or undisciplined because of ignorance on the part of the heads of the family, and as soon as that is explained, and they appreciate the necessity of carrying out forcefully a line of conduct and a line of living that is suitable, an improvement in the children in many cases is noted at once.

The Clinic, too, has to deal with a great number of perverts, which means that these people have turned from the right way; and it further includes a large number of cases of sexual perversion, which is growing more and more common among children. And if these perverted states can be treated early, corrections applied, and perhaps the child placed in better surroundings, the outlook for the child is unquestionably improved. Incidentally, the Clinic must have to do a good deal with poverty. It has been said recently that poverty has been decreasing, and this will be demonstrated if the establishment of such clinics can be attained through various parts of the country. In 1880 there were in county almshouses and other charitable institutions 132 paupers to every 100,000 population;



in 1910 this number had decreased to 91.5, and at the present time is 71.5. That covers the war period. The *Kansas City Star*, in commenting on this, shows that it reflects several things. No doubt the country's wealth and the extent of its diffusion have gained much in the period covered by the extreme dates.

Another factor of importance is the more intelligent handling of poverty through organized bodies, however much one may question this statement. No doubt many cases that formerly would have been permanent charges now are cured by investigation, supervision, and the methods of rehabilitation employed through workers. We shall hope to hear from the Child's Guidance Clinic of Minneapolis, through a published report, as to the work it has already accomplished and the number of cases that have been investigated.

#### THE ST. CLOUD MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The annual meeting of the Minnesota State Medical Association will take place in St. Cloud on Wednesday, Thursday, and Friday, of next week (October 8, 9, and 10). The meeting on Wednesday will be a meeting of the House of Delegates in the afternoon; and Thursday and Friday will be for meetings of a scientific nature. It is well to remember that the Medical Section will meet in the Knights of Columbus Hall, while the Surgical Section will meet in the Sherman Theater; and when the two Sections combine, they will meet in the theater.

The meeting in St. Cloud will be presided over by Dr. E. T. Sanderson, the first vice-president of the Association, as the president, Dr. Archibald MacLaren, is not sufficiently recovered to be present at the meeting. Thursday morning will be devoted to papers on medical and surgical topics at the two above-named meeting-places, while the general sessions will take place Thursday afternoon, a combined session, and a large part of it will be given up to a cancer symposium. Dr. Wm. J. Mayo, of Rochester, will speak on "The Relative Value of Surgery and Radio-Therapy;" Dr. Harry P. Ritchie, of St. Paul, on "The Destructive and Constructive Surgery of Malignancy;" Dr. Harold Robertson, of Rochester, on "Some Unusual Pathological Features Concerning Cancer." Dr. Margaret Warwick, of St. Paul, will speak on "Carcinomata as Shown by Paper Models Reconstructed from Serial Sec-

tion;" and Dr. Wm. A. O'Brien, of Minneapolis, will tell "What the Laity Should Know about Cancer."

The program is made up largely of men from the Twin Cities and Rochester, and includes five men from the country at large. The local Committee on Arrangements is headed by Dr. C. B. Lewis, of St. Cloud, and the committees on exhibits, reception, entertainment, lantern-slides, telephone service, meeting-places, signs, and golf are variously distributed through the membership of the Stearns-Benton County Medical Association. The Committee on Hotel Accommodations is important, and consists of Drs. J. H. Beaty, J. C. Boehm, and George D. Rice. It will be well for all to make reservations early. The committee in St. Cloud has also looked after the entertainment for the wives of medical men, which will include drives, luncheon, and a band concert at the Reformatory. On Thursday evening the K. of C. Hall will be the meeting-place for an entertainment given by local talent, followed by dancing and progressive card parties.

#### MAKING LIFE WORTH WHILE

The real joy in living is in extracting something that is worth while out of the daily work. One of the elements in joyousness is mental relaxation, and one of the greatest methods of obtaining it is music. Music has been for many years a source of joy and comfort to fifty per cent of the world; perhaps the percentage is larger—it certainly is among the European classes, where they are instinctively brought in close touch with music, and good music at that. Music has a soothing effect, a quieting effect, and is useful among the sick. It is one of the methods of expression among those who are well. There are but few people who can resist a parade in which there are bands playing; they are instinctively drawn to it, they are attracted by it, and it moves the spirit within them. One of the musical features in many of our larger cities has been community singing, where great crowds of people gather in parks or open spaces, and under good leadership give tongue to their voices; they join in whether they can sing or not. The effect is the same; it produces an emotional satisfaction, and is an effort in the colonization of power. Crowds are swayed by something that is stirring, and they feel a change in their attitude of mind toward one another.

Community singing has been a great pastime in Minneapolis, and sometimes thousands of people get together and shout themselves hoarse. So

it is with organizations, some organizations at least that get together for a mid-day luncheon; and they have introduced a new method of forgetting their troubles in vocal music. Unless one has been brought into contact with it, the inspiration is not felt, but even the greatest dullard is more or less influenced by music because it appeals to something that is pent up, tightened up within him, and he soon finds himself in a different mood. Many of the men's organizations have introduced this as the opening expression of their feelings before the business of the meeting is conducted.

Notwithstanding the fact that music should be looked upon as one of the higher functions of man, yet when it comes down to an actual expression of music the men like something with which they are familiar. Hence they sing popular songs, old songs they have known in boyhood; and it arouses in them a different spirit.

While dictating this article the writer is wondering why something of this kind cannot be introduced into our medical organizations,—not that he is a singer, but just for the joy of it, rather than have the president of a medical organization get up and pound with a gavel and announce that "the meeting will please come to order," then announce that the secretary will read the minutes of the last meeting, and so on; a commonplace thing is made to appear a very serious and important problem. Instead of that the writer would suggest that the medical meeting room should be equipped with a piano, and a pianist who has at his finger-ends the popular songs of the day and that by his enthusiasm and perhaps with the assistance of one or two leaders the whole audience can be moved to sing with its director. As they have already introduced golf tournaments at medical meetings and whist tournaments, why not introduce some music tournaments and get some of this old stale medical atmosphere out of the air and out of the chests of medical men. We are a serious, solemn lot at best, or worst; and we forget that some of the simpler things of life are just as important as those which demand our serious attention. Instead of having our association meetings opened with prayer or an address by some high official, why not open it with song and close it with prayer. The entire community would profit by a little more joyousness in the heart of the doctor. There are so many pessimists among us, and so few optimists, that perhaps music, hilarious music, too, would change our viewpoints. This is merely a suggestion, fostered by the fact that

a recent experience in the writer's day showed that music opens up the hearts and minds of the man much better than an address.

## BOOK NOTICES

**THE ANATOMY OF THE NERVOUS SYSTEM FROM THE STANDPOINT OF DEVELOPMENT AND FUNCTION.** By Stephen W. Ranson, M.D., Ph.D., Professor of Anatomy in Northwestern University Medical School, Chicago. Second edition, revised. Octavo volume of 421 pages with 284 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1923. Cloth, \$6.50 net.

The second edition of this book resembles very closely its predecessor, which appeared in 1921. A few additions have been made to the laboratory outline and a series of twelve typical clinical cases are reported for purposes of illustration.

Few subjects cause the medical student so much perplexity as structure and function of the nervous system. The text should have first of all the merit of not including excessive and ponderous detail and at the same time not lacking in adequate description. This, we believe, Dr. Ranson has achieved in his work.

The illustrations are clearly intelligible and the subject matter is carefully outlined. Throughout the text functional significance is frequently stressed. This phase stimulates interest, which cannot be attained by limiting attention to structural detail only.

The fact that a second edition was made necessary so early speaks well for its demand.

—J. C. MICHAEL, M.D.

**GERIATRICS.** A treatise on the prevention and treatment of diseases of old age and the care of the aged. By Malford W. Thewlis, M.D., editor, Medical Review of Reviews; associate editor, the Therapeutic and Dietetic Age. With introductions by A. Jacobi, M.D., LL.D., and I. L. Nascher, M.D., second edition, revised and enlarged. St. Louis: C. V. Mosby Company. 1924. \$4.50.

Dr. Thewlis, in the second edition of his book on Geriatrics, has collected material which gives a better understanding of the prevention and treatment of diseases of the aged. From the principles that "Senility is a physiologic entity like childhood," "Diseases in senility are pathologic conditions in a normally degenerating body," "The object of treatment of disease in senility is to restore the diseased organ or tissue to the state normal in senility," valuable practical applications are made. Included also is a comprehensive bibliography.

—C. A. MCKINLAY, M.D.

**MEDICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month), Vol. 7, No. 5. Per clinic year (July, 1923 to May, 1924), paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

1. Dr. Wm. Engelbach discusses carefully and comprehensively a series of thirteen cases of pituit-



any tumor occurring in 375 cases of uncomplicated pituitary disturbance.

2. Dr. R. A. Kinsella discusses hypertension and nephritis on the basis of Vollhard and Fahr's classification with illustrative cases.

3. Two cases of kidney involvement due to infections of the respiratory tract are reported by Dr. McKim Marriot.

4. Dr. Borden S. Veeder outlines the differential diagnosis and the complications of lobar pneumonia in children and reports a mortality of only 3 per cent.

5. A group of diphtheria cases in which antitoxin had not been administered early enough or in large enough doses, is shown in the wards by Dr. Philip C. Jeans.

6. Dr. John Zahorsky presents a small group of varied cases and demonstrates a phenomenon found in healthy children known as the mouth-and-hand synkinesia.

7. Spinal puncture and puncture of the cisterna cerebellomedullaris in the intracranial hemorrhage of the new-born is discussed by Jules M. Brady who shows several successful cases.

8. Dr. Sidney I. Schwab presents a group of patients with incapacitating cardiovascular symptoms due to psychoneurotic causes rather than to organic conditions.

9. Hysteria is the diagnosis in a group of five cases shown by Dr. Francis M. Barnes, Jr., with a wide variation in histories and signs.

10. Dr. John L. Tierney differentiates the various types of headache with the causes and treatments of each. He divides them roughly into intracranial and extracranial according to origin.

11. Cases of "renal glycosuria" and of prediabetic glycosuria are compared concisely and interestingly by Dr. Albert E. Taussig.

12. Dr. George W. Wilson summarizes the present knowledge on influenza with a generous bibliography appended.

13. A case of metastatic carcinoma of the brain, one of embolism of the superior mesenteric artery, and one of perforating gastric ulcer, illustrated by x-ray plates, are discussed by Dr. J. Curtis Lyter.

14. Dr. Drew Luten shows a well-chosen series of cardiac cases after digitalis therapy and outlines reasons for giving or not giving the drug in each.

15. The results of operation on a group of nine elderly people with benign stenosis of the pylorus are reported by Dr. Horace W. Soper.

16. Dr. William H. Olmsted emphasizes the importance of clinical history in diabetes, observing that diabetes is much more a clinical disease than a laboratory one.

17. Several severe cases of purpura with differential diagnosis and treatment are discussed by Dr. Alphonse McMahon.

18. A case of Mikulicz's disease with death about eight months after the onset of symptoms is presented by Dr. Louis H. Hempelman.

19. Dr. Charles Hugh Nelson comments on the difficulty in making a diagnosis of focal infection and points out the fact that the prostate is often neglected as a possible focus.

—OLGA S. HANSEN, M.D.

## NEWS ITEMS

Dr. F. W. Behmler has moved from Lafayette to Appleton.

Dr. H. Van de Erve has resumed practice at Carrington, N. D.

Dr. Paul Langan has moved from Webster, S. D., to Akron, Ohio.

Dr. F. A. Moore has moved from Lesterville, S. D., to Yankton, S. D.

Dr. A. P. Flaten has moved from Grand Forks, N. D., to Edinburg, N. D.

Dr. William Davis, of St. Paul, has returned from his summer home on Cape Cod.

Dr. Amos Bratrude, a recent graduate, has entered into partnership with Dr. C. J. Christensen of Starbuck.

Dr. G. M. Oberg, of Minneapolis, has returned from Europe where he went in May for special study, mainly in Vienna.

Dr. C. V. Lynde has moved from Chokio to Medford. Dr. Lynde has practiced in Minneapolis nearly forty years.

Dr. R. S. Vivian, who succeeded Dr. Edwards as school physician of Hibbing, has begun an examination of all school children in the district.

The physicians of Austin have offered their services free in a medical survey of the schools of the city. Every child will be given a thorough physical examination.

Dr. Paul M. Gamble, of Albert Lea, was married last month to Miss Jeanette B. Northam, of Minneapolis. Dr. Gamble is a graduate of the University of Minnesota, class of '23.

Dr. Arthur Margot, formerly Pathologist and Director in Charge of the Milwaukee County Laboratories, Milwaukee, Wis., has recently accepted the position of Pathologist and Director of the Clinical Laboratory with the Sioux Falls Clinic, Sioux Falls, S. D.

The newspapers of North Dakota gave extended notices to the meeting of the State Medical Association last month at Bismarck. They especially commented upon the president's address by Dr. James Grassick on "The Passing of the Old Family Doctor."

The Medical School of the University of Minnesota is to-day laying the cornerstones of The Todd Memorial Clinic and the Cancer Institute buildings. Addresses are to be given by Dr. Arthur Dean Bevan, of Chicago, and Dr. Edward L. Tuohy, of Duluth.

At the October meeting of the staff of the Lymanhurst School and Hospital, Minneapolis, Oct. 28, papers will be presented by Dr. David M. Siperstein, Dr. C. A. Stewart, Dr. Cecile Moriarity, and Drs. R. W. Morse and H. Lepman. All physicians are invited to attend the meeting.

Programs of the Inter-State Post Graduate Assembly, which is to meet in Milwaukee on October 22-31, may be obtained from Dr. W. G. Peck, Freeport, Ill. Dr. E. Starr Judd, of the Mayo Clinic, is a member of the Program Committee, and Dr. W. J. Mayo is President of the Clinics.

Dr. R. C. Farrish and his wife, of Sherburn, entertained the members of the Blue Earth Medical Society and their wives at Dr. Farrish's summer home last month. An elaborate luncheon was followed by talks by the men and a remarkable dramatic and musical program by the ladies, both by "local talent."

The North Dakota Eye and Ear Academy held its annual meeting in Bismarck during the meeting of the State Medical Association. The following officers were elected for the current year; President, Dr. M. P. Rindlaub, Fargo; vice-president, Dr. L. A. Schipfer, Bismarck; secretary-treasurer, Dr. M. B. Ruud, Grand Forks.

The North Dakota State Medical Association will meet next year in Fargo, N. D. The meeting should be the best in the history of the Association because the Association is progressing and, further, because Fargo is an excellent place in which to meet. One of the best meetings in the history of the Association was that held at Bismarck last month.

The Red River Valley Medical Society met at Warren last month, when papers were read by Dr. Edward Bratrud, Warren; Dr. Verne C. Hunt, Rochester; Dr. O. N. Meland, Warren; Dr. George Meland, Warren; and Dr. F. J. Hirschboeck, Duluth. Dr. H. M. Blegen, Warren, was elected delegate to the State Association, in addition to Dr. G. S. Wattam, who was elected at the annual meeting.

Dr. Edward J. Hotz, for some time a member of the faculty of Creighton Medical College, of

Omaha, has joined the Stutsman County Clinic of Jamestown, North Dakota. Dr. Hotz is a graduate of the State University of Iowa, collegiate and medical schools, and pursued advanced studies at the Roosevelt Memorial and Bellevue Hospitals of New York. His special work in the Clinic will be general practice, cystoscopic examinations, and treatment of urinary diseases.

The United States Public Health Service, in a recent bulletin, gives "some interesting side-lights on the recent epidemic of smallpox in Minnesota," the figures in which were furnished by the Minnesota State Board of Health. There were 182 cases. Of 139 cases who had never been successfully vaccinated, 34 died. Of the remaining 43 who had the disease, 39 had not been successfully vaccinated within seven years, and 6 of them died. Of the remaining 4, 2 had been vaccinated and 2 had had the disease in childhood, and none of the four died.

The twenty-ninth annual meeting of the American Academy of Ophthalmology and Otolaryngology was held at Montreal, Canada, last month with a large attendance. The Northwest was represented by the following men; Dr. R. D. Alway, Aberdeen, S. D.; Dr. A. E. Johnson, Watertown, S. D.; Dr. W. L. Morsman, Hibbing, Minn.; Drs. W. L. Benedict and Burt E. Hemstead, Rochester, Minn.; Dr. H. W. Grant, St. Paul; and Drs. H. S. Clark, Horace Newhart, Wm. R. Murray, J. A. Pratt, and J. S. Reynolds, Minneapolis. Dr. Carl C. Wold, of St. Paul, was elected a fellow; and Dr. E. J. Brown, of Minneapolis, was elected one of four life members of the Academy. Dr. Horace Newhart, of Minneapolis, was elected president of the Academy for the current year. The next meeting will be held in Chicago. The membership of the Academy is now 1,500; and hereafter applicants for membership must pass an examination in ophthalmology or otolaryngology to be admitted. Eighty new members were received at the last meeting.

#### THE MINNESOTA ACADEMY OF MEDICINE

Meeting of September 10, 1924

The Minnesota Academy of Medicine held its annual meeting at the Town & Country Club on Wednesday evening, September 10, at 8 P. M. The meeting was called to order by the President, Dr. A. S. Hamilton. There were 27 members present.

The minutes of the May meeting were read and approved.



The annual reports of the Secretary and Treasurer were read and accepted.

The annual election was held and the following officers were elected:

President, Harry P. Ritchie, M.D., St. Paul; vice-president, Henry L. Ulrich, M.D., Minneapolis; secretary-treasurer, John Eldon Hynes, M.D., Minneapolis. (re-elected.)

Dr. John F. Fulton, first president of the Academy, and Dr. S. Marx White, escorted the newly elected president to the chair.

The retiring president, Dr. Hamilton, then read his President's Address, entitled "Historical Survey of the Academy of Medicine."

JOHN E. HYNES, M.D.  
Secretary

#### Record Clerk Wanted

By the Winona (Minn.) General Hospital. Preferably a graduate nurse. Address Superintendent, Winona General Hospital, Winona, Minn.

#### Office Equipment Wanted

I desire to purchase an examining table, an electric sterilizer, a small cabinet, some instruments, and a desk. Must be cheap. Address 147, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Laboratory Technician Wanted

A pathologist or an expert laboratory technician for a South Dakota clinic and hospital. One trained in serology and blood chemistry. Good salary. Address 134, care of this office.

#### Technician Desires Position

A technician who has had six months experience in a hospital laboratory seeks work. Can also do office and stenographic work. Moderate salary will be accepted. Address 146, care of this office.

#### Assistant Wanted

As soon as possible, to do general work in clinic. New modern hospital and well-equipped office. Will pay \$200 per month and all expenses pertaining to practice. Address Kittson County Clinic, Hallock, Minnesota.

#### Technician Wants Position

A young woman with three years experience wants a temporary or permanent position. Can do all routine work and blood chemistry. Now taking

basal metabolism in a city laboratory. Address 140, care of this office.

#### Physician Wanted

To locate in Hosmer, Edmunds County, South Dakota. A good business town surrounded by a large territory. Offices furnished free of charge in the rear of the drug store. Please inquire of A. D. Pietz, Hosmer, S. D.

#### Physician Wanted in North Dakota

In a town of 250. Large surrounding territory; nearest town with doctor 13 miles. Located on a State road. Prefer man who will carry his own stock of drugs. Splendid chance for good man. Address 131, care of this office.

#### A Good Opening

Excellent opening in Southwestern Minnesota for cost of drugs and office furniture. Good territory; only physician; desires to locate on coast. Good roads; four-year high school; mixed community. Address 135, care of this office.

#### Position Wanted

By a middle-aged woman who is greatly in need of work. Can do ordinary routine laboratory work and can take full charge of office. Prefer work in Minneapolis. Can give the best of references to city physicians. Address 132, care of this office.

#### Southern Minnesota Practice for Sale

A \$6,000 cash, unopposed and growing practice in town of 500. Four churches, high school, two banks, creamery, good dairying and farming country, excellent roads. Competition, 25 miles north, 25 miles south, 10 miles east and 10 miles west. \$700 buys practice and office furniture. Address 137, care of this office.

#### Fine Location in South Dakota

In town of 1,250, east central part of state. Competition 22, 35, 13, and 13 miles. Excellent wards. Modern office with dentist. Complete office equipment and drugs. No real estate. Young man with hospital experience would make good here. Reason for selling: leaving state to specialize. Address 139, care of this office.

#### Operating Table and Instrument Case for Sale

I have for sale one large-sized steel and plate-glass instrument case, suitable for either physician's office or hospital operating room; has combination lock and is enameled white; a bargain. Also one Allison office operating table, golden oak, in fair condition. Write or call upon Dr. Hugh J. Tunstead, 1126 Metropolitan Bank Bldg., Minneapolis.

#### Physician Wanted

In a central Minnesota town of 300; splendid farming community; collections always nearly 100 per cent; Scandinavian and German community. Good high school; two churches; two banks; creamery; etc. Competition 15, 8, 16, and 15 miles. A house can be rented for \$20 a month. Good man can make money from the start. Address 142, care of this office.

# THE JOURNAL LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 20

MINNEAPOLIS, OCTOBER 15, 1924

Per Copy, 10c  
A Year, \$2.00

## OBSTETRIC AND GYNECOLOGIC CONDITIONS: A CLINIC\*

By F. L. ADAIR, M.D.

Associate Professor of Gynecology and Obstetrics, University of Minnesota Medical School

MINNEAPOLIS, MINNESOTA

### *Presentation of Cases:*

#### CASE I: HYDROCEPHALUS AND SPINA BIFIDA ✓

The first specimen is that of a baby born to a multipara twenty-three years old. The family history is unimportant, and the Wassermann reaction of the mother and child is negative. Three previous pregnancies have occurred, with normal labors. All the children are living and well. The pregnancy which resulted in the birth of this child was thought to have taken place in June, 1923. The pregnancy was normal until about the 11th of May, 1923, when the patient began to have labor pains. There was rupture of the membranes about the 15th, without apparent excess of amniotic fluid. The physical examination showed rupture of the membranes, and there was discolored amniotic fluid, very little cervical dilatation, and the fetal heart tones were normal. A diagnosis of hydrocephalus was made. The cervix was dilated manually, and a craniotomy was performed in order to deliver the child. The head held about 1,800 c.c. of fluid and the circumference was estimated at twenty-three inches.

The child, in addition to having this large hydrocephalic head, also has a spina bifida, which, I think, you can see. It is located in the upper spinal region.

The point of interest in connection with monstrosities is, What causes them? In the past

syphilis has been held responsible for the development of some of these, but there is very little clinical or pathologic evidence to support this view. Monstrosities do not occur with greater frequency in syphilitics than in other individuals. They occur with parents perfectly healthy and normal and with no evidence of syphilis, and most of the monstrosities give no pathologic evidence which could be considered pathognomonic of syphilis. There is no reason why people who are syphilitic should not have monstrosities, but syphilis is apparently not a cause of the maldevelopment.

We have two theories. One theory, advocated by Mall, of Johns Hopkins, was that it was environmental, that certain maternal conditions affected the ovum in its growth and caused the formation of the monstrosity. The other viewpoint, advocated particularly by Huber, of Michigan, is that it is not so much environmental as it is intrinsically a germ cell affair and that anything that has a detrimental effect on these germ cells may affect their development. So much for the theory of causation.

The main obstetric importance of these monstrosities is the way they affect the course of labor. So far as the dangers from the malformation are concerned, we are not very solicitous about the offspring. They cannot lead useful lives and are not particularly desirable citizens even should they survive. This viewpoint, there-

\*Clinic before the South Dakota State Medical Association, Mitchell, S. D., May 21, 1924.



fore, modifies our procedure in obstetric work. We might have a fetus with a high floating head which would not engage, and might be led to consider a Cesarean section, but, if we could make a definite diagnosis of a hydrocephalic infant, we would decide differently, and definitely against a Cesarean section, because the reason for doing a Cesarean section would be principally on account of the child. We can deliver such a child by certain mutilating operations with less danger to the mother, and there is no particular use in saving the lives of these children. In this instance the doctor, having made a diagnosis of hydrocephalus, was right in doing a craniotomy and delivering the fetus through the pelvis. It was a perfectly justifiable procedure. We have demonstrated this specimen in order to bring out some of these points.

#### CASE II: TOXEMIA OF PREGNANCY WITH CONVULSIONS

This case is interesting because it presents a very frequent complication in which we are all interested. The patient is a married woman, thirty-two years old, whose family history is unimportant. There have been no previous pregnancies. The present pregnancy, or illness, dates from September 12, 1923. She came under observation in April, 1924, at which time there was considerable albumin in the urine. She also had a rather marked generalized edema of about three weeks duration, a slight headache but no visual disturbances. The blood pressure was 190 systolic and 110 diastolic. There was marked edema, and she also had a mitral regurgitation and a slightly dilated heart.

The diagnosis of pregnancy was made, and the fetal heart was found to be good. On April 10, 1924, her blood pressure was 215-110. On April 11 she had one convulsion. On April 12 the blood pressure was 205-110; on April 15 it was 220-120. On April 16 she had severe convulsions, four or five of which occurred in rapid succession. On that date she was delivered by manual dilatation, version, and the extraction of a living, premature infant. Since delivery she has had no convulsions. The blood pressure on May 14 was 130-85. The urine was clear. The general condition was good, except for some anemia due to some hemorrhage during the delivery. The hemoglobin on April 17 was about 50 per cent, but on May 16 had reached 75 per cent.

This brings up for discussion the very interesting obstetric complication referred to as the

toxemia of pregnancy. We recognize two main types, the so-called early and the late toxemia. The early usually is characterized by the excessive vomiting, the pernicious vomiting of pregnancy, whereas the late is characterized by hypertension, albuminuria, edema, and, not infrequently, convulsions. It is well enough to say that we can prevent these toxemias, but literally we cannot prevent them. We do not know what causes them, and the only thing we can do is to detect them early in their course. We cannot prevent nor control them except in so far as we control the termination of pregnancy. In that way we may perhaps prevent the rapid development of toxemia in an acute form, and yet we see cases of a fulminant type in which we are incapable of preventing the very serious results of this toxemia.

#### CASE III: TOXEMIA OF PREGNANCY WITH CONVULSIONS

We also have another type of toxemia, and this patient illustrates some of its features. This patient had scarlet fever at eight years of age and has had repeated attacks of tonsillitis. She had a tonsillectomy in 1922. There have been no previous pregnancies. Her last menstrual period was about the third week of October, 1923. She consulted a doctor at her former home during December, but was not examined. There was no nausea or disturbances, such as frequently occur with pregnancies. She had no trouble until February, 1924, when she noticed marked edema of the hands and feet. The edema increased, and a doctor was called on April 22, but he made no examination. Following this a second doctor was called, and on the same day a third doctor was called who saw her in a convulsion on the occasion of his first visit. She was sent to the hospital and had four more convulsions before she arrived.

Physical examination at the hospital showed a very marked generalized edema. The tongue was swollen and bleeding as a result of the trauma incident to the convulsive attack. She was comatose. The abdomen showed the existence of a pregnancy of about seven months, but she was not in labor. The genitalia showed tremendous edema. The blood pressure at that time was 130-90. The urine showed a marked amount of albumin, estimated to be 50 per cent by volume. Casts were also present. A Cesarean section was performed on the same day she arrived, and she was delivered of a premature infant, which died twenty-four hours later. The

reason for doing this Cesarean section was because of the tremendous edema of the external genitalia and the birth canal.

On April 23 she had marked pulmonary edema, and the pulse was 180. On the 24th she had improved somewhat, but she had no memory for events which had transpired from April 22 until April 24, which is a rather common condition in eclampsia. She had no recollection of seeing either of the two doctors at her home, or of being transported to the hospital, and was in total ignorance of what had occurred between the time of her leaving home and the events that had happened before she came to herself in the hospital, and was ignorant of her location. Her blood pressure was 160-110. On the 28th of April she had four severe convulsions, six days postpartum. The phenolsulphonephthalein test showed a practically normal output, 75 per cent in two hours.

On April 29 she was in a rather serious condition, but since then has improved. The blood pressure is now normal, and the urine is clear.

We have here another case of toxemia which I might present while the patient is on the platform. There are some other symptoms which I wish to talk about later in connection with this case.

#### CASE IV: TOXEMIA OF PREGNANCY WITHOUT CONVULSIONS

This patient is twenty-six years old, and her general health has been good. There is a history of frequent, painful urination, with severe tenesmus prior to the first pregnancy. She has had one normal pregnancy in which she went to term. It terminated in a high forceps delivery, which was done at home, and the child died in the early days of its life. Her convalescence during the puerperium was normal.

Her last menstrual period was in August, 1923. She had rather marked nausea and vomiting early in the pregnancy, and she consulted a physician early on account of some edema and scanty urination. Examination of the urine showed a specific gravity of 1034, albumin 5 per cent, with some hyalin and granular casts and also a small amount of pus in the urine, which I wish to mention in connection with some bladder symptoms which she had some years before. Her blood pressure was 190-90. Upon percussion over the kidney region there was tenderness, with marked edema, but so far as is known there were no chills or fever. She was in the hospital for two weeks and was placed on Fisher's solution. The

blood pressure varied from normal to 190-90, and the albumin varied from a slight amount to 8 per cent. The amount of edema also varied.

She went on to term after improvement from rest, and dietetic and other treatment in the hospital, and was delivered spontaneously of a living child without having had any convulsions.

We have shown here some different types of toxemias of pregnancy.

#### CASE V: PYELITIS AND THROMBOPHLEBITIS OF ILIAC VESSELS

This woman is twenty-five years of age. Her family history is perhaps of no particular importance, but it may have a bearing on the infection from which she suffered. The patient has no evidence of diabetes, but her father had diabetes, and this may have some relation to her lack of proper immunity to infection. She has never been strong or healthy, but has had no previous pregnancies, this one being a normal pregnancy during which her health improved. She had a normal labor, lasting about nine and a half hours, on December 24, 1923. The child was delivered spontaneously. There was a slight laceration, which was repaired. The placenta and the membranes were complete, and delivered entirely, and no vaginal examination was made. Postpartum she had a temperature of 100° F., pulse 56, and respirations 16. Two days later, on the 26th of December, she complained of rather severe pain extending from the lumbo-costal angle to Poupart's ligament, along the course of the ureter. Associated with this there was marked tenderness of the right rectus muscle. The white blood count was 14,400, and there was 84 per cent polymorphonuclears.

On the 27th and 28th she was somewhat improved, but on the 29th the pain and muscle spasm returned, with considerable muscular resistance, and a mass was palpable through the abdominal wall. She was thought to have an attack of appendicitis, and operation was performed, but, instead of finding a diseased appendix, a rather large, sausage-shaped tumor was found in the posterior part of the pelvis. The appendix appeared normal, as did the adenexa. The abdomen was closed, with a diagnosis of thrombophlebitis.

This raises the question of a possible pyelitis, and this case will be considered later in connection with the preceding one, which also brings up the question of pyelitis in association with pregnancy and puerperium. We also have here a thrombophlebitis, which has cleared up,



and the patient is now well, as you can see, having recovered from the infection of the pelvic veins.

#### CASE VI: PUERPERAL THROMBOPHLEBITIS

This case is also one of thrombophlebitis. The patient is eighteen years old. Her family history is unimportant. She has had a mitral regurgitation for some years. There have been no previous pregnancies. Her present illness, or the one in which we are interested, was a pregnancy which resulted in a rather prolonged labor at term. The cervix became fully dilated, the head lying rather low in the pelvis, at which point it became fixed. Examination through the rectum and vagina showed the head resting against the coccyx, which was crooked and impinging on the outlet, thus shortening the posterior sagittal diameter of the pelvis. The head did not progress satisfactorily, and in the process of delivery the coccyx was fractured and the head delivered. Episiotomy was done, and a normal, living child was obtained. The membranes and placenta were complete. The puerperium was afebrile and uneventful for several days. On the twelfth day the patient had a chill, with some increase in temperature, about 104° F., and, following this, there was a slight swelling, induration, and tenderness in the region of Scarpa's triangle. She, undoubtedly, had a thrombophlebitis, which obstructed the return flow of blood from this region. After two weeks she has returned to normal and is now convalescing nicely and undoubtedly will have no complications as a result of the thrombophlebitis.

These cases represent two different types of thrombophlebitis, one which develops rather rapidly and acutely early in the puerperium, the other late in the puerperium following after practically an afebrile course. There was a sudden rise in temperature with a chill, and then the localized tenderness and swelling of the whole extremity, indicating that we were dealing with some thrombosis of the vessels. My own experience with these so-called afebrile cases has been that, if the temperature is taken and recorded regularly throughout the puerperium, one always finds fever, not necessarily marked but always some evidence of infection. It may not rise over 100° or 100.6° F., but there is always some rise, and when the patient is about ready to go home the disappointment is keen when she is suddenly seized with symptoms and signs of thrombophlebitis. The doctors are also disappointed, but this is not so important as the con-

dition develops in the patient, who bears the burden. This is one argument for keeping these patients in bed somewhat longer, until we are sure that they will not have any trouble with thrombophlebitis.

The next two cases are not associated with the puerperium or childbearing, although there is a very important relationship to this condition.

#### CASE VII: BILATERAL SALPINGITIS; PULMONARY TUBERCULOSIS

This patient presents a number of points of considerable importance. She is twenty-three years old and a widow. In childhood she had chorea with rheumatic fever. In 1918 she had an influenzal infection, followed by pulmonary tuberculosis. She had had two previous pregnancies, and has one healthy child, three and a half years of age. She had one miscarriage, in 1919. In February, 1922, she was taken with an acute attack of pain in the lower abdomen, the origin of which is not exactly clear. She had gone about two weeks over her expected menstrual period when she was seized with this pain. Her husband apparently had had a Neisserian infection. There is but little evidence to make one think that she was pregnant at this time. There is no really positive evidence of a Neisserian infection, and yet, following this attack of acute pain in the left lower part of the abdomen, she developed a mass in the pelvis, a diagnosis of abscess was made and she had a vaginal drainage by a physician in Kansas City. After that she returned to this city and the cul-de-sac was again drained on March 3 and again on April 15, 1922. There was also a positive demonstration of tubercle bacilli in the sputum.

The patient was removed to the hospital and again had a vaginal drainage in May, 1922, the drainage continuing for seventy-three days. She left the hospital August 2, but returned in October, remaining for one hundred and four days at that time. The drainage was profuse from the posterior vaginal wall. From March, 1923, to May, 1923, she was in the hospital because of a pleuritis of tuberculous origin. In February, 1924, she had an abdominal operation, with a bilateral salpingectomy, at which time massive adhesions and also inflammatory cysts were found. The tubes were examined for tuberculosis, but there was nothing found microscopically which indicated this infection. She still has a positive pulmonary tuberculosis, but the lung condition is gradually improving with the betterment of the pelvic condition.

This case might bring up for discussion the relationship between tuberculosis and pregnancy, between miscarriage and infection, between pelvic and pulmonary tuberculosis, and also the possibility of a Neisserian infection being responsible for the pelvic abscess. It also brings up the very important question of the management of these acute inflammatory conditions of the pelvis no matter what the origin may be.

CASE VIII: GONORRHEAL SALPINGITIS; PUERPERAL INFECTION

This young woman presents a condition which is similar. She is nineteen years old, and her family history also is unimportant. She has a history of tonsillitis, influenza, and erysipelas. She had a tonsillectomy performed in 1921, and an appendectomy. I shall refer again to this appendectomy in 1923. Her menstrual history is unimportant except for the fact that she has had marked dysmenorrhea with some irregularity of flow.

In October, 1923, she was seized with a severe attack of pain in the right lower portion of the abdomen, for which she had the appendectomy. However, she was not relieved and was seen again on April 22, 1924, when she complained of pain in both lower quadrants of the abdomen, with considerable tenderness. She also had some nausea and vomiting, with pain and dizziness. These attacks of pain have been periodic and frequently have been severe enough to confine her to bed. Physical examination showed evidence of gonorrhea, and the microscope gave proof of the Neisserian organism. On April 22 her temperature was 102.6° F., pulse 100, and respirations 24. Examination of the abdomen showed marked tenderness, rather marked distention, and rigidity. Bimanual examination revealed a profuse vaginal discharge, from which smears were taken, and also a tender mass was found in the adnexal regions.

She was operated on the same day. Both tubes were removed, drainage was instituted, and the patient has made a rather uneventful recovery. Her temperature has been normal since the fourth of May, and she has been doing well in every way.

This case is not at all an unusual type of infection of the tubes due to extension upward from a genital infection with the diplococcus of Neisser.

We will now have the slides which illustrate some of the points I wish to bring out about these cases.

*Slide 1.*—The first group are those from the so-called toxemias of pregnancy. This slide shows the case of a woman, about thirty-five years old, who came under observation for the first time at about the fifth month of pregnancy. She was watched through the pregnancy and at about the eighth month began to have a slight increase in blood pressure, not enough to cause any great concern but higher than it previously had been. This was manifested both in the systolic and diastolic curves. A little later this pressure dropped, but in the last month it mounted to a somewhat higher level. This patient went into labor, and the blood pressure mounted still higher, to between 150 and 160, the diastolic being relatively higher, mounting to 110. She also had a moderate amount of albumin. The edema was not marked. She had some fibromyomata of the uterus and was a rather elderly primipara. She had one convulsion, which came on rather suddenly during labor and because of the fact that she had some rather large myomata and was a rather elderly primipara, we deemed it wise to do a Cesarean section. This was done, with the result that we immediately had a drop in the pressure, with a secondary rise some hours after the delivery. After this the pressure dropped again and regained its normal level. This, undoubtedly, was a case of true eclamptic toxemia developing abruptly in the later months of pregnancy.

*Slide 2.*—The next case is that of a woman who came under observation in the second month of pregnancy, with a blood pressure which would hardly be regarded as normal, and, if taken into consideration with her toxemia, it is fairly high. It remained fairly normal until the seventh month, when it mounted rapidly to a high level. She was placed under supervision in the hospital, following which it dropped somewhat, to rise again in the eighth month. At this time we induced labor, and she had, subsequent to this, some convulsions, and was delivered of twins. Following this delivery the blood pressure dropped one hour after delivery, but sixteen hours after labor it had again risen to a somewhat higher point. This pressure, from 1915 to the present, has remained persistently normal, and it undoubtedly was a case of eclampsia.

*Slide 3.*—This woman first came under observation in 1916, when she was four months pregnant. She gave a history of two previous pregnancies, one ending in labor at term with definite eclamptic symptoms. The blood pressure was not taken at that time by the physician



who looked after her, but she had some convulsive attacks. She had a forceps delivery, which resulted in the loss of her child. She then came to me in this pregnancy and was very desirous of having a living child.

At first her blood pressure was 160. The urinary findings were not particularly marked. There was a trace of albumin but not enough to be alarming. She was watched through the fifth and sixth months, and then the blood pressure dropped and went up to 160 again, and here (indicating), at about six and a half to seven months, there is a rather marked increase in the pressure, following which she was placed on proper treatment, with a decided drop. The blood pressure went up in the eighth month to a higher level, and she developed more albumin, marked edema, some disturbance of vision. These things made us anxious about the case, so we induced labor prematurely. We obtained a living infant, which is still alive, and following that the blood pressure rose again, with another drop. The pressure has just about obtained the level which preceded the pregnancy, or which was present in the early stages, and she was under observation until 1922. I saw her recently, and the pressure is still 160 to 170. Her pressure was not normal prior to her last pregnancy, it was certainly not normal during the pregnancy and has not been normal since. The urine shows only a moderate amount of albumin. The functional tests indicate glomerular nephritis, which she probably has had somewhat masked since childhood, when she had scarlet fever. Pregnancy makes her worse.

This, I think, is not eclampsia, but a case of a woman with impaired kidneys, which resulted from scarlet fever in childhood. She has glomerular nephritis, not of high grade, but sufficiently severe so that when pregnancy makes an added strain she is unable to stand it, and we get the results which we see in the chart.

*Slide 4.*—This next case is somewhat similar, in a multipara of about forty-two, who came in early in pregnancy with a blood pressure of 150-90, which gradually rose to 210-130. We thought it was not wise to let her go on and only did so under protest. She was extremely anxious to have a child because she had recently lost one. We carried her on as long as possible, and she was delivered of a premature infant, which is getting along nicely. The blood pressure curve has dropped down to the former level. I think this is not a true case of eclampsia.

*Slide 5.*—This case I had under observation for about three years, at various periods. She was under observation by another physician, and we have a fairly good chart of her blood pressure running over a period of at least four years. She first came under observation when she was not pregnant, desired to be pregnant, but did not consider it entirely safe to be so. That was in 1915. The blood pressure was 160-120, an unusually high diastolic. At the sixth month of pregnancy it reached 210-160.

This woman was placed in the hospital under observation, and the fetus died in utero. She was delivered of a six months fetus which was macerated and had died as the result of the condition which was giving the mother this disturbance. Her blood pressure dropped, and she was not seen again until she was again pregnant, when the blood pressure went up to 240, and she again had the same experience of having a dead fetus, and again the blood pressure receded, gradually dropping down to the same previous level. You will notice on the chart that the blood pressure went higher in this than during the preceding pregnancy. She went along with this high pressure and evidence of disturbed kidney function until 1919, when the pressure mounted very rapidly, the kidney function was much disturbed, and she died in uremic coma. We secured one of the kidneys, and it is classed as an arteriosclerotic kidney. This case had some of the earmarks of eclampsia, but it was not a true eclampsia.

The point I wish to make particularly is that we are not always dealing with the same condition, although many of the symptoms are the same,—the hypertension and the edema,—in many of them.

I shall not dwell on these next slides particularly except to say that we do have in pregnancy kidney infections which we group under the general term of pyelitis, or infected kidney pelvis. I hope to demonstrate that we have in many of these cases other factors than simply a pyelitis.

*Slide 6.*—This woman is pregnant. You will notice the position of the ureter and the passage of the catheter upward until it reached a position where it curled back on itself.

*Slide 7.*—The next one is from the same case and will illustrate a little better. This shows the catheter passing up and also back again, and you can see the catheter here (indicating). There is evidently some obstruction with dilatation, or hydro-ureter with dilatation of this kidney pelvis.

*Slide 8.*—This is from a somewhat different case. All of these cases are associated with more or less fever and some definite evidence of kidney infection with pus in the urine. This shows the fetal head in the pelvis, the catheter running in here (indicating), showing a dilated ureter and also the outlines of the pelvis of the kidney which is somewhat enlarged.

*Slide 9.*—This is from a different case with a markedly dilated ureter and a dilated kidney pelvis here, whereas on this side we have a fairly normal ureter. They are all associated with pus and show a febrile reaction, and usually positive cultures are obtained from the urine.

*Slide 10.*—The next case shows the fetal head in the pelvis, the ureter somewhat dilated, and you can see the catheter makes a complete turn, the opaque fluid here is the dilated pelvis.

*Slide 11.*—This is from the case of a woman with a dilated ureter on both sides, and with an enormously dilated kidney pelvis on this side (indicating).

Apparently these cases of kidney infection either have some obstruction in the ureter or else an inflammatory condition of the ureter produces some obstruction, which interferes with proper drainage from the kidney, leading to dilated ureters. Naturally, any infection tends to cause trouble. Pregnancy evidently acts in some way to prevent proper drainage, and I wish to call your attention particularly to the two cases I presented. We not infrequently have hydro-ureter and pyelitis both in association with pregnancy and the puerperium. We have infection of the kidney pelvis which, unless considered very carefully as a possibility, may lead to faulty diagnosis. We should remember that we may have an acute infection of the kidneys which may light up any time during the puerperium, during the early days or later on, and we have during this period a definite damming back of the urine, producing a hydro-ureter and hydro-nephrosis, which may cause a pyonephrosis, which may result in destruction of the kidney with a perinephritic abscess. These conditions should be kept in mind and picked up as early in the course of the case as possible.

*Slide 12.*—I am throwing on the screen a temperature curve of a patient with cellulitis, the infection starting at about the third day. The fever continued until the 10th or 12th, when she had an abscess in the pelvis opened and drained, with a drop in the temperature. Here is a simple form of puerperal infection where the tissues become infected with the staphylococcus, and ab-

scence forms which, when drained, is followed by prompt recovery. This usually results in complete and rather prompt cure if properly handled.

*Slide 13.*—This is a puerperal septicemia with eventually a thrombophlebitis. This woman had a premature birth with retained placenta, and following this she developed pelvic infection which resulted in her death from embolism. On the fourth day she had a rise in temperature with marked rigor, and, as you see, her pulse follows the temperature curve up to 160. Here (indicating) is a fifteen-day interim with temperature of 101.5° F., and again an exacerbation of the trouble which apparently is a reinfection, and this time it became a septic thrombophlebitis with rigor and temperature and the formation of the embolus which resulted in her death. This was undoubtedly due to the streptococcus, and the septic thrombus became broken down and led to death from embolic processes.

*Slide 14.*—This slide simply illustrates the circulation of the female genital tract, showing the arteries of the uterus and the veins which accompany them. It is easy to see from this how any infectious process which originates in any portion of the vaginal tract may extend. It is also easy to see how any infection which involves the upper portion of the vagina and so forth may travel along the veins and go out into the pelvis, involving the iliac veins and going into the vena cava.

*Slide 15.*—This one shows the lymphatics. We must remember the three courses of infection, one along the mucous membrane, which is best illustrated by the Neisserian, which is a surface infection spreading along the glands of the mucosa, out through the tubes and their fimbriated ends, and setting up a peritonitis. This is the way that gonorrhea usually spreads, and we not infrequently have this lighting up following an abortion or following delivery at term, and it spreads along the mucous surface of the uterus and tubes. Then we have the infection spreading along the blood vessels, along the vascular channels, which is best defined by the streptococcus. Usually when we have a phlebitis it is due to the streptococcus. The staphylococcus and streptococcus also travel along the lymphatics, but, whether they travel through the blood or lymph channels, they may reach the circulation, and this shows how they may pass up through the lymphatic ducts and gain access to the general circulation, or through the blood vessels and produce a blood-stream infection, or septicemia. This is a rather graphic illustration



and more or less diagrammatic, showing the spread of the infection from the lower genital tract, showing the spread of the infection from the vagina, and this (indicating) a little higher up, from the upper uterine portion.

*Slide 16.*—This slide shows in a sagittal section how these same infections spread to the same portions surrounding the genital tract.

*Slide 17.*—This simply illustrates what happens in the endometrium with different types of infection.

*Slide 18.*—This shows the barriers which the membrane throws up against the streptococcic and staphylococcic infection, as a sort of fortress which is thrown up against this infection. On the other side (indicating) we have the exudate thrown up against the gonorrheal infection. These slides show the fallacy of attempting to cure in these cases. All one does is break down the barrier against the inroads of the infection, and it is important in this type of case not to break down the barriers in this type of infection.

*Slide 19.*—This shows again the direction of infection as indicated somewhat in the previous slides. This shows the course along the ligament, this (indicating) around the tubes, and this (indicating) around the cervix and here (indicating) from injury of the external genitalia.

As you all know, we have no specific method of treating these infections. They must be handled by rest, good food, and proper elimination, and we have recently given considerable attention to the use of the foreign protein therapy in an attempt to increase the patient's resistance to infection. The main proteins which we use are whole blood, milk, and bacterial proteins. The theory on which this work is based is perhaps best explained by some work which Larson has done in connection with some animal experiments, in which he has found in taking six rabbits sensitized to sheep's blood that half of them

produced antigens which were capable of coping with the infection. Two produced only moderate amounts, and one no antibody. If these same rabbits were then injected with dead typhoid bacilli (protein) he found that the three which had produced the maximum amount of antibodies had no increase in their antibodies. The two which had produced their antibodies in moderate amounts had, as a result of this injection of protein, a definite increase in their antibodies. The rabbit which had no increase developed a very marked production of antibodies when subjected to the use of the bacterial protein. The theory, then, which perhaps best accounts for these phenomena is that the organisms of all the rabbits produced antibodies, but that the antibodies in only one-half the rabbits (three) are thrown off from the cells, so that they become apparent in the body fluids and really become effective. The other two released only a small portion of antibodies and the sixth one did not release any antibodies at all. As a result of the fresh protein injection these animals are stimulated to release their antibodies, and consequently they enter into the blood stream and become potent elements in combating the infection in these individuals. This is the theory which seems to account for this phenomenon. For several years I have been making use of the human whole blood in cases of puerperal infection, giving it in doses of 25 or 30 c.c. subcutaneously, each day, and it seems to sustain and increase the resistance of these patients. I have seen several who have responded to this method of treatment who had failed to respond to any other methods which we had used. Others have used whole milk, and others have made use of the bacterial proteins. I have had no personal experience with the bacterial proteins and very little with the milk protein. Foreign protein therapy is not a panacea but is a method worthy of trial in some of these cases of infection.

## BURNS AND THEIR TREATMENT\*

By EDWIN LINCOLN GOSS, M.D.

CARRINGTON, NORTH DAKOTA

A burn is a lesion produced by excessive heat, corrosive liquids, or electric currents. Dry heat produces burns, and moist heat produces scalds. Scalds are usually less severe, but cover greater

surfaces of the body. The severity of burns depends on the degree of temperature, duration of exposure, and extent of area involved, rather than on the depth of the burn.

American surgeons classify burns into three degrees:

\*Presented at the sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.

1. Those that extend down to the tips of the papillary loops.

2. Those that extend through the dermis and subpapillary plexus.

3. Those extending through the subcutaneous tissues to, or through, all the remaining tissues.

*Pathology.*—There is an immediate dilatation of the subcutaneous vessels with erythema and a rapid exudation of serum into the skin and subcutaneous tissues. The white and connective-tissue cells produce swelling and edema. The skin cells become softened, and an accumulation of serum causes bullæ,—blisters. With longer exposure and greater heat, cells coagulate and carbonize; vessels become occluded with the formation of an eschar, which adheres closely to the surface of the burnt area, forming a foreign body. The blood supply is *nil*, forming a fertile field for sepsis. This eschar usually separates in about fourteen days, the wound healing by granulations from organization of young connective-tissue cells with contractures and deforming scars and occasionally keloid growths. When more than a third of the body surface is affected, usually death supervenes by paralysis of the heart, thrombus, septicemia, or toxemia.

*Prognosis.*—The prognosis should always be guarded, as it is impossible to determine the extent of injury to the underlying tissue; the profoundness of the shock, and the intercurrent complications, such as thrombus, toxemia, sepsis, etc., which may occur during the healing process.

Every case of burn is an emergency case, and, unless of very mild severity, is attended with more or less shock, which is the chief immediate danger. This should be overcome by most effective measures, even before the removal of the clothing. In the cases with the most profound shock, there may be the least pain, while in the less severe cases there will be intense pain. Very nervous types of patients will suffer more pain than those of blunt temperament. In cases with intense pain it is best to give some form of opiate, preferably a hypodermic of morphin. It has the effect of relief for a time, but leaves an irritable nervous center when its effect has worn off. In children who do not bear opiates well, it is better not to give it, or when the blood pressure is low, as it depresses the heart. Strychnin, digitalis, or brandy are all ill advised to use as they irritate the nerve centers and interfere with rest.

The best way to prevent or relieve shock is a hot-water bath, either full or partial, and at a temperature at or below 100° F. Make the tem-

perature the most agreeable to the patient; place him in the bath before any attempt is made to remove the clothing. This softens the parts and the clothing is more readily removed with less pain, less danger of hemorrhage, and less trauma.

Increase the blood pressure by rectal, subcutaneous, or venous injection of normal saline solution. One may add 30 minims of adrenalin to the pint of saline in the veins. Adrenalin is of no value in rectal or subcutaneous injection. Pituitary extract may be of value administered intramuscularly. Leave the patient in the bath if necessary for several hours, waiting for improvement. When put to bed place hot packs, bottles, etc., around him, care being used that he is not burned with them.

When recovery from shock begins, give hot drinks of milk, beef tea, or bicarbonate of soda water, still keeping up the saline if the blood pressure is low. If tympanites supervenes use the rectal tube with a few drops of turpentine in an enema.

If toxemia supervenes combat with diaphoretics and diuretics. Shock may not occur for from thirty-six to forty-eight hours and then be rapidly fatal. Secondary shock may come later when the eschar begins to loosen, and is due to infection. Toxemia usually lasts from ten to twelve days and is due to absorption of proteins from the burnt area or to inflammatory conditions in the internal organs or viscera affected by the burn itself. Burns on the surface may cause injury to membranes lying immediately under it, or to remote organs, as nephritis, duodenal ulcers, meningitis, and gastro-enteritis. There may be supervening pneumonia, pleurisy, meningitis, bronchitis, etc.

There is always danger of sepsis until the eschar has separated, and when it does occur the patient may last only a few hours because of his low resistance. The most common organisms producing the sepsis are the streptococci and the staphylococcus aureus, and the prevention of sepsis depends on absolute cleanliness.

Underhill and his assistants, in 1921, in the investigation and treatment of 21 cases of severe burns occurring in a theater fire, came to the conclusion that the blood of severely burned cases is highly concentrated; that this increase in concentration is an important factor in the development of many of the clinical signs and symptoms characteristic of burns. The recognition that in extensive burns the blood becomes highly concentrated leads to a rational method of treatment to obviate the untoward symptoms.



Restoration of normal blood-concentration by adequate forcing of fluids is accompanied by marked evidence of improvement; and the development of the usual sequelæ,—delirium, unconsciousness, gastro-intestinal disturbances, albuminuria, hemoglobinuria,—is checked in these badly burned cases, and the vast majority of these patients ultimately recover.

Decrease of blood-concentration to a point near the normal limit is, therefore, of prime importance in the systemic treatment. The determination of the degree of blood-concentration may be regarded as an index of the patient's general condition, and will also indicate the extent to which fluids should be forced. The rational treatment of these severely burned cases is the forcing of fluids, by the mouth, if possible, if not, then, by rectum, underneath the skin, or intravenously. This treatment tends to maintain the heart and dilutes any poisons which may have entered the circulation.

The aim of the local treatment of burns is thus summarized:

1. To prevent sepsis.
2. To avoid giving pain by too frequent dressings.
3. To employ methods that favor the removal of the eschar and promote the regrowth of epidermis.
4. To prevent, as far as possible, contractions and deformities.

#### TREATMENT OF FIRST DEGREE BURNS

For the burning sensation one may use one teaspoonful of subacetate of lead to the pint of cold water, applied on parts with saturated lint or gauze and covered with cotton, or one may use 1 per cent aluminum acetate solution. One tablespoonful of bicarbonate of sodium to the pint of water is not so effective, but may be used. After the burning sensation is relieved, dust with any aseptic bland powder, as zinc oxid, stearate of zinc, talc, etc. A watery solution of 2 to 5 per cent of ichthyol greatly relieves the erythema. After the bandages have been removed apply calamine cream made as follows:

R	Prepared calamine.....	1 dram
	Zinc oxid.....	1 dram
	Almond oil.....	1 dram
	Lime water.....	1 ounce

Some surgeons prefer 1 per cent solution or 0.5 per cent ointment of picric acid in preference to the other applications.

#### TREATMENT OF SECOND DEGREE BURNS

After steps have been taken to relieve the shock and remove the clothing, attention should be given to the removal of all foreign matter if it is possible to do, using a normal saline or boric solution for irrigation. The bullæ, if large and full of serum, are punctured aseptically with a knife, and the serum pressed out with a piece of sterile gauze. If there is liability to infection, and the blebs are not large, but slightly filled, it is better to dress them without opening, whether punctured or not. The cuticle should be left as a protection of the sensitive nerve-endings and to prevent sepsis. The dressing should now be applied, consisting of cotton lint or gauze soaked to saturation with 1 per cent picric acid or 1 per cent aluminum acetate solution. If the burn becomes septic, as detected by the odor, soak the dressings with boric or saline solution until the dressings can be removed with the least degree of pain and without hemorrhage. Picric acid solutions when applied to large surfaces sometimes causes poisoning.

#### TREATMENT OF THIRD DEGREE BURNS

In burns of this degree we have the devitalized tissue, and the eschar, which acts as a foreign body and takes about fourteen days to become separated from the underlying tissues. It is very susceptible to septic infection and becomes a focus for absorption of toxic products. The concern of the immediate treatment is the separation of this dead tissue and the healing of the granulating surface. In these cases leave the small blisters and open daily the larger ones, which will cause pressure-pain from accumulation of the serum, remove all tags of dead tissue, and irrigate with normal saline or boric acid solution or, better still, with Dakin's solution; dry with aseptic sponges; and dress with a 1 per cent picric acid, or 1 per cent aluminum acetate solution, keeping the dressings moist so that, when removed, this will not injure the newly forming epithelial cells. Change the dressings as seldom as possible, such change being indicated (1) if the wound becomes septic; (2) if it becomes painful. Irrigate several times a day with warm saline; about the time the eschar is to come off, irrigate with warm boric solution or, better, Dakin's solution newly made. After the eschar has sloughed off there is left a rough granulating surface with some hemorrhage. There are presented at this stage three methods of treatment for healing:

- A. Under natural scab.
- B. Under paraffin dressing.
- C. Under moist dressing.

A. *Treatment for healing under natural scab or without dressing.*—The burnt area is first irrigated with a boric or normal saline solution, detritus and loose dead tissue are removed, and the parts mopped with a dry sterile sponge. The parts are then dried in the open air, with an electric bulb or, better, an electric dryer, and then dusted with some mild astringent powder, such as stearate of zinc, magnesium carbonate, or zinc oxid. These powders are detergent, deoderant, mildly disinfectant, and slightly adhesive. The first application may cause smarting, but usually passes away when a crust is formed. The crust becomes thicker as the powder is repeated. The parts should be inspected twice a day, and the powder dusted on as the serum accumulates beneath and around the edges of the scab. If the burn is on the dependent portion, and liable to come in contact with the clothing, use some kind of mechanical apparatus to keep the parts suspended. Do not remove this scab until the eschar is ready to come off or unless it becomes septic, which is detected by the odor. To remove the scab soak the parts with boric or saline solution or, better, freshly made Dakin's solution until the scab will come off without trauma.

Three things are desirable to attain: To fix the parts, mild antisepsis, and the prevention of trauma. If the patient complains of being cold make a cradle apparatus in which place electric bulbs. The electric light does three things: Produces warmth, helps to keep down bacterial growths, and stimulates epithelial cell growth. If the seropus oozes from under the edges of the scab this should be wiped away and more powder applied. Finally the crust dries up and crumbles away. If it is necessary to remove the scab because of sepsis, after removal of the scab treat the parts with Dakin's solution, or, if a saprophytic infection develops, use 2 per cent acetic acid solution, treat with ultraviolet rays, electric bulbs, and allow the scab to form as previously. Keep the parts at rest. Do not tamper with the scab more than is necessary, as this interferes with the formation of new epithelial cells. The scab aids in the prevention of the exuberant growth of granulating tissue by the pressure it exerts on the new cell growth. This method gives a more pliant scar and may be used before eschar has sloughed, but it is better after the slough has come away.

B. *Treatment for healing under paraffin dressing.*—Artificial scab. The chief advantages are as follows: It alleviates pain, protects the tissues, and acts as a splint; the pressure it produces on the underlying tissues prevents the growth of exuberant granulations, the heat of the paraffin helps to prevent sepsis by killing the microorganisms; and being non-adherent, it can be removed almost painlessly without injury to the newly formed epidermis.

Anderson, in his work, "Diseases of the Skin" (1888), mentions the use of paraffin in burns, but paraffin and its compounds were not in general use until the Great War. Two proprietary preparations deserve special mention as they have been extensively employed with considerable satisfaction: first, Ambrine, manufactured by the Ambrine Company, of Paris; and, second, Parresine, manufactured by the Abbott Laboratories, of Chicago. Lieut.-Col. A. J. Hull, of the British Army (Brit. Med. Jour., Dec. 15, 1915), has perfected a highly satisfactory formula known as No. 7 paraffin as follows:

Resublimated betanaphthol.....	0.25 per cent
Eucalyptus oil.....	2.0 per cent
Olive oil.....	5.0 per cent
Paraffinum molle (or vaselin).....	25.0 per cent
Paraffinum durum.....	67.75 per cent

Any of the paraffin preparations that have a melting point of between 150° and 118° F. are of value. When used they are brought to a temperature of 200° F. or more, and then brought down to the proper temperature for use, which is about 140°F. They are either used from an atomizer, which is set in a pan of cool water to bring it to the proper temperature, care being used that no water enters the atomizer, or painted on the surface of the burn with a camel's hair brush.

The formula of scarlet-red paraffin is as follows:

Scarlet-red.....	0.2 per cent
Eucalyptus oil.....	2.0 per cent
Olive oil.....	5.0 per cent
Adeps lanæ hydrosus.....	4.0 per cent
Paraffinum molle.....	21.0 per cent
Paraffinum durum.....	67.8 per cent

The preparation of the wound before applying the protective dressing is important. Irrigate with a normal saline or boric solution; remove all dead tissue that is possible with scissors or dry sterile gauze sponges; the parts are dried in air, or better, with the electric dryer. The parts are now covered with a layer of paraffin spray



or painted on, then covered with a layer of cotton or cotton flannel; this is covered with another layer of paraffin; over this another layer of cotton; and over all a roller bandage. The first dressing should be left on for twenty-four hours, then removed and applied as before. The frequency of changing the dressing depends on the condition of the burn, whether septic or not.

The claims for the paraffin dressing are the following: (1) it alleviates pain; (2) it protects the tissues; (3) it acts as a splint; (4) it prevents exuberant granulations; (5) it does not interfere with the growth of new epidermal cells; (6) it reduces the necessity of skin-grafting.\*

*C. Treatment for healing under moist dressing.*—This method is inferior to healing under either a natural scab or the paraffin dressing. The granulating surface is covered with gauze saturated with some mild antiseptic solution, as boric lotion (one teaspoonful of boric acid in one pint of water)—or, better, freshly made Dakin's solution. The parts are kept continuously saturated with the solution.

If exuberant granulations do occur they may be treated with nitrate of silver stick, or the parts covered with perforated oiled silk covered with gauze saturated with a solution of aluminum acetate.

It may save time to anesthetize the patient and scrape off the granulations.

#### SKIN-GRAFTING

If it is elected to do skin-grafting the wound is sponged dry of all oozing and dried in the

\*Paraffin-Wax or Closed Method of Treatment of Burns, (Surg., Gynec. and Obst., vol. 26, No. 4, 1918).—Sherman recommends practical features in dressing as follows:

a. At the first dressing burns should not be scrubbed with antiseptic solutions. The tissues are sterile as a result of the burning, and nothing is to be gained by further traumatizing the tissues. Apply the wax at once; merely sponging will not sterilize the wounds if they are infected, regardless of the antiseptic solution used.

b. Strong antiseptic solutions should not be used in cleansing the burn or granulating tissue at dressing; they should be comparatively weak. The strong antiseptic solutions tend to retard repair. Saline, boric, chlorazene, flavine, brilliant green, or chloramine can be used in weak solution (preferably in an atomizer).

c. The instructions should be carefully followed. Absorbent cotton should never be applied directly to the burn or wound, as it tends to adhere and stick, causing a burning sensation which is very uncomfortable to the patient. The wax applied alone is a soothing and comfortable dressing.

d. The fetid odor and gray appearance of the wound when the shell is removed should not cause any undue anxiety. After the seropurulent fluid has been washed away and the sloughing tissues separate, granulation with rapid proliferation of epithelium takes place.

e. It is impossible to burn the patient when the atomizer is used. The wax should not be applied at a temperature over 150° F. when the brush is used.

f. In third and fourth degree burns with great loss of tissue, granulations should be sterilized with Carrel-Dakin method and skin grafted at the earliest possible opportunity. Grafting is not necessary unless there has been very extensive destruction of tissue.

g. The application of the heated wax encourages the flow of lymph, protects the capillaries and granulation tissue from trauma which is favorable to rapid repair.—J. H. Rishmiller.

open air or with an electric dryer. Asepsis should be strictly adhered to throughout the entire process of skin-grafting. If asepsis cannot be absolutely obtained, good results may follow even then. A seropurulent secretion is no bar to skin-grafting, but the parts should be as free from pathologic germs as possible.

Skin-grafting should be done as soon as possible, as it aids in healing and helps to avoid contractures. There are several methods, but perhaps the best for deep burns is Thiersch's method and for the more superficial burns Reverdin's method (pin-point graft). In the technic of the pin-point graft the skin in some region of the body most devoid of hair is selected, cleansed with soap, water, and alcohol; a sterilized needle lifts the cuticle up and a piece of cuticle about one-quarter inch in diameter is removed with a sharp scalpel and transplanted to the burnt area about one-quarter inch apart. The edges of the burnt area are covered with vaseline, the whole surface is covered with perforated cellulose silk or prepared animal tissue, and the dressing left on for thirty-six to forty-eight hours. The parts are then exposed from time to time to the electric light or violet rays, which stimulates the epithelial growth. It may be several days before the grafts show that they have caught, when small pearly-white pin-points will manifest themselves. Some prefer to allow the grafts to heal under a natural scab.

#### REFERENCES

- "Burns and Their Treatment," by J. M. H. MacLeod, England.  
 "New Methods in the Treatment of Burns," by Dr. Gilbert R. Mickelthwaite, Ohio State Med. Jour., March, 1922.  
 "Treatment of Acid and Alkali Burns," by A. K. Smith, M.D., Manager of the Medical Section of E. I. du Pont de Nemours & Co., Wilmington, Del.  
 "Lecture on Burns," by First-Lieut. John McDickson, Camp Greenleaf, M. O. T. M.  
 "Blood Concentration Changes in Extensive Superficial Burns and Their Significance for Systemic Treatment," by Dr. Frank Underhill and Assistants, Archives of Internal Med., July, 1923.

#### DISCUSSION

DR. ARTHUR A. LAW (Minneapolis, Minn.): While Dr. Goss was reading, my thoughts went back over a period of thirty years of practice, during which time we have run the gauntlet of every kind of treatment of burns. The very multiplicity of methods described implies that no one method is better than another. I confess to a liking for 0.5 per cent of picric acid in sterile vaselin. Picric acid in solution is the nastiest thing in the world, discoloring the bed, the dressings, and the patient yellow.

The essayist spoke of one very important point, the exhibition of fluids to these patients. The more fluid we can get into them the better, for the tissues are pretty well dried out after a severe burn. If they are unable to retain fluids by the mouth, we can give it by Murphy's drip or by hypodermoclysis.

We have had a chance to try out practically every method of treatment of burns. I remember an explosion of charcoal dust in which a large number of people were burned. In the General Hospital I treated a number of these patients, while my colleague on the other service treated a like number. He used different methods of treatment, while we used the picric acid ointment. The ones treated with picric acid ointment healed up more rapidly.

For years we were taught that any individual burned so severely that one-half the body was involved, was doomed to die. Our experience in France was interesting. A soldier after the exhaustion of a battle crawled into a church to sleep. He was wet with perspiration and stretched out on the stone floor. On awakening the next morning he could not open his eyes and was badly burned as the church was filled with gas. When brought down to the Base Hospital it was found that this man had sustained a second degree burn with mustard gas, covering his entire body except the dorsum of his feet and his left chest. He had tucked into his campaign shirt pocket some picture cards from home, size 2.5x5 inches, beneath which the skin was not burned. Otherwise every square

inch of his body was burned with a second degree burn. All we did was to put him to bed in sterile sheets, and he got well.

Personally I do not like the open treatment of burns. I repeatedly tried it out at the University Hospital. Put these people under a tent of sterile sheets and we will drive everybody out of the room. In spite of everything the odor is wicked; the burned surface crusts over; and the secretions dry out and become foul. I have no brief for the open method of treatment.

One point the essayist failed to mention is the burns produced by an electric current. In these cases we never know how extensive the burn is until after we have had the patient under our care for some time. A large slough takes place in three or four weeks, but at the time the patient is brought in we have no idea of the extensive destruction that may ultimately appear, for it does not appear early. Some apparently trivial electrical burns ultimately are very extensive, because the electric current destroys the trophic nerves, as well as the other tissues. These burns take a very long time to recover and are difficult to prognosticate.

## THE FEAR OF THE CULTS

BY AN OLD COUNTRY DOCTOR

While medical science shines with a pale splendor, and appears to our mortal eyes as a beam of the Divine Light, still, after all, it casts but a feeble ray into the gloom of man's sad inheritance,—disease and death. Even the farthest outposts of science reach but a comparatively short distance into the dark domain of human affliction. So why should we be dismayed, if poor humanity groping in the dark between hope and despair, grasps at any other hand that may be held out to it with a promise of hope even if such hope be false?

No doubt it is this insufficiency of medical science that is the cause of the existence of numerous bands of pretenders who, eager for gain, flaunt their banners in the market place, boasting loudly of miracles performed and, in a coarse and vulgar manner, holding out false hopes to the afflicted. Through all the din and clangor the honorable profession of medicine remains silent as befits a body of men who are students of science, devotees of the healing art, and who are guided by honesty of purpose.

The cults fill a vacuum, therefore they have a function, and this entitles them to a certain degree of consideration.

A cult does not rest on a scientific basis; if it did, it would not be a cult, but would be a part

of some greater whole. The foundation upon which a cult rests can best be described as a kind of scientific nonsense, which renders its development along scientific lines impossible.

Evolution declares that the vertebral column is the oldest part of the skeleton and, as such, is the nearest to perfection. But, if Chiropractic and Osteopathy be true, then evolution must be mistaken, and the whole vertebrate kingdom, from the fish in the sea and the birds in the air to the vertebrates on land, must lead a life of pain and misery, due to the imperfections of their backbone. We could only make ourselves ridiculous by attempting seriously to refute such nonsense. A cult thrives on persecution. In order to perpetuate itself a cult must develop an enemy strong enough to furnish the resistance necessary for its survival. Otherwise the cult will undergo natural involution and pass away. As we appear to be the logical enemy of the medical cults they generally begin by throwing stones at us. Once they have aroused our opposition, the rest seems to be easy, as we appear unable to pursue a consistent line of conduct towards them. We act like a man chasing a lot of small boys for throwing snow-balls at him; we are neither graceful nor dignified.

It is recorded in the medical journals that, at



a meeting where this question was being discussed, a gentleman from one of the Southern states arose and said that in his state a short time ago, they had several hundred Osteopaths, but that now they had less than twenty. On being asked what had become of the ninety and nine, the gentleman naively replied that they had all passed the State Board examination and were now practicing general medicine.

This is disposing of the cults with a vengeance. This is the real menace of the cults as far as we are concerned.

To ensure the solidarity and supremacy of a profession it is necessary to exercise a standardized process of selection, from the time that the student begins his studies, with his mind young and plastic, until such time as he is given permission to practice his art. To allow people to enter from every direction vulgarizes the profession, lowers it in public esteem, destroys its "esprit de corps," and renders it less attractive to the very best kind of young man—him with the soldier spirit.

Every time we meet with an Osteopath cutting out tonsils, practicing obstetrics, and general surgery, we may know that he is only a chicken come home to roost. We kept after the Osteopath about raising the requirements,—so here he is, exploding the idea that it takes profound scholarship or deep learning to practice obstetrics or to do surgery under certain circumstances or after a fashion.

Nothing better exemplifies the old saying that "A child can lead a horse to water, but ten men cannot make it drink," than to see the manner in which the cults treat the scientific medical subjects that we insist on their putting into their curriculum. They call them contemptuously "reviews," but they soon wake up to the advantage of memorizing enough of them to be able to pass some state board and become regular doctors, bidding farewell to the cult which has not changed through all of its vicissitudes.

If we could suspend hostilities, if for nothing else than strategic reasons, we would probably witness a passage at arms between Chiropractic and Osteopathy because the cults are notorious for fighting with each other. They claim they are being persecuted by the "medical trust." Now the "medical trust" is a myth, as we all know. We are not organized along trust lines any more than the Salvation Army is, but so great is their eagerness to be able to howl "persecution" that they have to create an imaginary "medical trust."

No homology exists between the cults and scientific medicine. Medical science is a development of biology and kindred sciences and stands on a broad base, whereas a cult, if traced to its source, will be found to spring from the vagary of some human mind. Medical men are not the followers or disciples of any one man, such as Palmer or Still, who are the fathers of Chiropractic and Osteopathy, respectively.

The cults have an affinity for the public mind—they think on the same plane.

The public mind is essentially a mass mind, and evolution has not yet raised it to the level of reason, so that it is easily charmed by theories that are vague and illogical. The trained professional mind thinking on a higher plane, has difficulty in understanding, or being understood by the public. The cult is not, as some people contend, some sound principle of science which has been neglected by the medical profession and is being taken up by the cult and emphasized. Something like this may be true of religious cults, but not of medical cults. If this were true the cult would be immediately brought back into the fold and the followers told to go around to the front door or remain outside. As it is now, the followers are admitted and the cult remains outside. It is said that there is some truth in everything, but when the truth is infinitesimal and the humbug is overwhelming we call it a cult.

Our efforts to repress the cults have been fruitless and might as well be abandoned. We should at least desist long enough to give them a chance to attack each other, instead of infusing the spirit of union into them by making them face a common enemy.

We would soon hear howls of dismay coming from the people when they found that the cults are not as honest as they thought they were. We might withdraw our background for a while and let them run riot and appear in their true light. Let the proper authorities look after them if they get too strong, while we can be busy setting our own house in order.

Our self-assumed rôle of custodians of the public welfare does not justify us in making a melting-pot out of the profession, expecting to throw in dross and have pure gold come out. To impose a curriculum on a cult school which has no sympathy with scientific medicine and then to allow the output of such a school to enter our profession by taking some examination or by other hocus pocus, will have a demoralizing effect out of all proportion to the apparent insignificance of the cause. We should not pervert

the evolution of the cult by resisting it. We prevent them from developing along their own lines. If all of the cults were removed overnight nature would at once rush in to fill the vacuum, and new cults would appear the next morning.

When we resist a cult we advertise it, and the cult is able to recruit itself and incidentally to finance itself. Like a woman, it can't stand to be ignored. Every Chiropractor that we put in jail is a martyr to the cause. Every boomerang law that we get through the legislature, contributes to their permanency and enables them to appear before the public with the halo of martyrdom on their brows. There is no logic in our position of trying to force the cult to study scientific medicine. Our alleged solicitude for the public welfare is the excuse that we offer, but the public does not believe us, but thinks that our motive is self-interested. If we wish to confer a real boon and blessing on the public, we will so prepare ourselves for public service that we will be ready to take up the work when the cults fail. There is little use in erecting high barriers at one end of the profession and taking them down at the other end, if every cult follower is a potential M.D. If we keep on absorbing Osteopaths as fast as they are produced, then we might as well disband our forces for raising the standard of medical education. There is a certain element of caste necessary for every learned profession to maintain its authority with the people. If we keep on absorbing the cults we will have to abandon this high but essential ideal.

One cannot go to any large medical meeting and see so many well-shaped heads and strong adventurous faces without being impressed with the fact that the American doctor is a very capable fellow. There is pride of profession there, and also that pride of spirit that cannot brook pity. If the general practitioner did not have such a bitter struggle for existence, the probabilities are that the cults would not occupy much of our attention; they would be allowed to come and go without interference by us, they would be succeeded by new cults who would live their allotted time and pass away.

No recorded effort has ever been made to ameliorate the economic condition of the general practitioner. Perhaps it is impossible, at least without hurting his pride, but it is at least worthy of discussion, for it is a condition which really exists. Many far less important lines of endeavor have been subsidized, either directly or

indirectly. Besides, we have men who are capable of thinking and acting along these lines. The general practitioner should not fear the cult too much. Much of his fear is imaginary. The cult, per se, is never dangerous: it is only when its followers are admitted into the regular profession that danger arises, and then the danger is to the profession in general.

The burden of our theme is, "Leave the cults alone." Don't kick sleeping dogs. Give the cults a chance to fight among themselves. Our profession seems to be able to cope with the enemies in front of it, but seems helpless against the subtleties in the rear.

Recently we have heard much of diploma mills etc., but these do not constitute much of a menace: they are easily discovered, and, when discovered, are easily dealt with, and the holders of the bogus diplomas can be removed without any trouble. But it is the soft, stealthy infiltration from the rear. The Osteopath passes the State Board after a review. The cults are urged by us to put themselves on a scientific basis, and they begin practicing medicine. All this is aided and abetted by public sympathy.

It is plain that if we are not self-reliant and look out for ourselves that nobody else will.

## BOOK NOTICES

**SURGICAL CLINICS OF NORTH AMERICA.** Vol. 4. Number 2. April 1924. Mayo Clinic Number. Philadelphia and London: W. B. Saunders Company.

As is true of this journal always, the April number contains too extensive and varied a series of subjects to permit a complete review. There are 31 clinics, reviews, and lectures by 33 contributors.

There is, first, a series of clinics on the gastrointestinal tract, from "Obstructions of the Esophagus and Cardia" through "Surgery of the Stomach," and "A Consideration of Some of the Functions of the Liver" down to "Carcinoma of the Rectum, Rectosigmoid, and Sigmoid."

Next comes a series of clinics and clinical lectures on the genito-urinary tract: Pre-operative care and treatment of a patient with urinary retention due to prostatic hypertrophy; a series of cases of prostatic hypertrophy of various types; an operation for vesicovaginal fistula; a study of renal tumors; a review of cases of hydronephrosis and pyonephrosis.

Two clinics on the thyroid follow. We were particularly interested in that on "Obstructive Dyspnea Following Surgery of the Thyroids and Its Prevention," which is well written and is illustrated with diagrams.

The clinic on the differential diagnosis between angina pectoris and surgical diseases of the abdomen is well worth perusal by anyone interested in medi-



cine or surgery; the subject is always worthy of thought.

Among other interesting subjects considered in this April number is the "Surgical Risk of the Diabetic Patient." The method of procedure used at Rochester is described and two cases are cited and discussed.

Finally there is an abridgment of three Mayo Foundation Lectures by Dr. W. J. Mayo: "Surgery of the Kidney"; "The Spleen"; and "Cancer of the Stomach." All of these, as might be expected, are packed with valuable and highly useful pointers.

—THEODORE H. SWEETSER, M.D.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month). New York Number. July, 1924, Vol. 8, Number 1. Per clinic year (July, 1924 to May, 1925): Paper, \$12.00 net; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The current volume of the Clinics has a decided trend toward cardiac and gastro-intestinal subjects, together with articles on the treatment of diabetes, a series from the neurologic service of the Bellevue Hospital, scattered discussions of unusual cases and one or two semiphilosophical speculative articles dealing with functional and neuropsychopathic subjects. The outstanding article, in point of unusual interest, is that by Nathan Brill. He gives a very thorough and complete study of a case of acquired chronic hemolytic icterus, complicated by myeloid leukemia. The differential points between congenital and acquired icterus and other forms of jaundice are very clearly brought out, including the determination of the bilirubin content of the blood serum, pigments in the duodenal contents, and the resistance of red-blood cells to hypotonic salt solution, in the latter case recommending the washing of the cells as giving more clear-cut reactions. According to his experience, splenectomy is a curative procedure in hemolytic icterus.

The papers of Foster Kennedy on Fits and George Hyslop on Constitutional Inadequacy, are both suggestive, although the former is highly hypothetical as to both its premises and its conclusions.

Different phases of cardiac pathology are covered in several papers. Levy renews the old controversy as to the cause of pain in angina pectoris, MacKensie versus Albutt. His classification seems needlessly involved, and the nosological distinctions rather fruitless. Boas and Rifkin have found that the heart conditions in chronic multiple arthritis (arthritis deformans) may be infectious, arteriosclerotic, or on a hypertensive basis, depending on the age group in which the patient falls. May Wilson evaluates vital capacity and exercise tolerance tests in the management of children with organic heart disease. Pardee details the symptomatology and physical signs in a case of aortic disease. Walden Muns' paper on the disturbances of the heart action does not particularly clarify the subject. Several of his points seem at variance with the accepted diagnostic criteria of Lewis, and his classifications are not as simple or accurate as those of either Lewis or Wenckebach. The material is confusingly presented, there being a hodge-podge of diagnostic, prognostic, electrocardiographic and therapeutic data presented in great disorder. John Wyckoff gives a detailed account of two cases of

auricular flutter with 2-1 block. Morris Kahn explains the mechanism of the pulse and blood pressure differences obtaining in cases of aneurysm of the arch of the aorta.

The gastro-intestinal subjects are of the commoner varieties excepting four cases of primary carcinoma of the liver presented by Von Glahn and Lamb with autopsy findings. These findings showed that carcinoma of the liver was secondary to cirrhosis and that this factor predominated in the clinical picture, the differential points being that at the time when the liver should decrease in size (at onset of ascites) in cirrhosis, in carcinoma it actually continues to enlarge. Harlow Brooks reviews the evidence in the cases of chronic appendicitis and chronic cholecystitis, recognising the difficulties and recommending frankness with the patient in cases of doubt and the advisability of exploration.

Walter L. Niles presents a series of cases of stomach disorder due to congenital hepatoduodenal membranes, and declares that these conditions can be diagnosed by fluoroscopic discovery of high position and fixation of the duodenum without ulcer signs. Burrell Crohn treats two of his cases of hour-glass stomach conservatively with apparently satisfactory results. A. L. Holland calls duodenal ulcer "post-pyloric" ulcer and gives as the etiology a fatigue disorder in which the breakdown of the neurotrophic mechanism of the parts involved, renders possible an infection. He emphasizes the use of the fluoroscope with pressure filling of the cap in the diagnosis, and gives his ambulatory schedule of diet and medicine as the treatment. John L. Kantor's seven cases of what he calls penetrating gastric ulcer are questionably such. Surely the historical and Röntgen data given, at least in the mind of the reviewer, do not substantiate the diagnosis. They are seemingly of the simple, submucous type; the reaction to the medical treatment outlined also adds to the doubt of their being anything but the type which always reacts favorably for a short time to divided feedings of bland foods and alkalization. Besides, all such dogmatic opinions as are given in conclusion by Kantor, resting on the very brief observation of only seven cases, seem premature.

The treatment of diabetes is taken up by Herman Mosenthal and Weiner and Marks, in two articles. The present-day diabetic should take a course in higher mathematics preliminary to his entering upon his dietary régime if he is to make use of all the charts that have been recommended for his use in the past few years. It is also to be wondered what the state of mind of the rule-of-thumb practitioner must be these days, when every periodical he picks up has a different system, each guaranteed to be more simple than the other and all of them requiring a knowledge of integral calculus, or logarithms at least. Mosenthal stays on the conservative middle ground in his fatty acid-glucose ratio by giving it as 1.2:1. His discussion of insulin is needlessly erudite for the Clinics. Weiner and Marks recognize the difference in treating an intelligent diabetic with an unrestricted dietary choice and the ignorant one who is economically unable to carry out any but the most simple régime, giving charts designed for free clinic and dispensary practice. Drake F. Donaldson gives a high protein and cellulose, low carbohydrate and fat diet for the treatment of simple obesity.

The article of Russell L. Cecil on the Common Cold contains the suggestion that susceptible subjects be immunized by autogenous vaccines throughout an entire season.

Orenstein gives reports of cases of syphilis which have simulated pulmonary tuberculosis.

Leo Buerger sets up an array of nosologic and diagnostic difficulties as bogies, apparently for the satisfaction of "booing" them away. His prolix article deals with pyelitis. The rare condition of xanthoma diabetorum is described as a case by Lough and Killian.

Nellis B. Foster opened the volume with a citation of functional disorders which in his analysis of 3,000 cases have simulated organic disease. It is a superficial article.

George Draper's viewpoint on endocrinology in pediatrics is that uniglandular pathology invariably means polyglandular dystrophy, but the discussion itself deals mostly with the work of Neurath, Cushing, Lorrain, and Levy on pituitary disorders.

The volume closes with a series of routine studies of neurologic conditions, including multiple sclerosis, thrombosis, cord tumor, multiple neuritis, and neurologic symptoms and signs arising from nasopharyngeal tumors.

The volume, as a whole, does not meet the standard of the Clinics that have come under the reviewer's hands in the past. Perhaps the life of the great metropolis is carried on at too rapid a pace for as careful a consideration of these various subjects as should be necessary before publication, for, except the Brill article, the others appear to have been written when the taxi was caught in a traffic jam. One's time is not, however, wasted in reading this set of Clinics, as there is a good deal of stimulating material here, and, if most of it is of negative value, perhaps it is just as well.

—J. B. CAREY, M.D.

**SURGICAL CLINICS OF NORTH AMERICA.** Vol. 4. Number 1. February, 1924. Philadelphia number. Philadelphia and London: W. B. Saunders Company.

Over 100 pages of this number are taken up with clinics concerning bronchoscopy and allied subjects. One article on the rapid deductive diagnosis of dyspnea requiring tracheotomy appealed especially to the reviewer. Dr. Tucker gives the essential signs of such a condition as (1) Indrawing of the suprasternal notch; (2) Indrawing at the inner ends of the clavicles; (3) Sometimes also indrawing of the intercostal spaces and of the epigastrium.

In severe cases showing the first two of these signs, the author considers it unwise to delay tracheotomy until the appearance of cyanosis. He says that in such cases tracheotomy should be done first and the diagnosis completed afterward.

Doctor Deaver's clinical lecture on the "Essentials of Surgical Diagnosis" is, of course, bound to be read with interest and profit. The lecture was prepared in association with Doctor Reimann, the pathologist of Lankenau Hospital.

Seven cases are presented by Dr. George P. Muller, illustrating the peculiar surgical problems presented by the diabetic patient. The preparation of the patient, the choice of anesthetic, and the post-operative care are discussed; the use of insulin is brought out; and some special causes of disaster are cited.

Of different significance, but of interest in connection with the above noted clinic, is the presentation of a case of acute hemorrhagic pancreatitis, in the postoperative treatment of which insulin was used. The patient, two months after operation, was alive and working. The clinicians felt that the insulin was a material aid in tiding her over a very serious and critical period.

Five cases are presented by Dr. E. A. Schumann to illustrate the variability in symptoms and pathology of acute intestinal obstruction. The obstructions were caused by volvulus, thrombosis of the superior mesenteric artery, diaphragmatic hernia, a large gall-stone in the ileum, and congenital absence of the distal end of the ileum.

Among many other interesting clinics and lectures is one that can be read with profit by all who work in hospitals. It is a well-presented discussion of the problem of reactions following blood transfusions. Dr. Ravdin's views are based on about 1,000 cases of transfusion at the University Hospital in Philadelphia. Many methods have been used there and the subject carefully studied. The discussion, which, by the way, is relatively short, is well worth perusal by surgeons, pathologists, internists, and hospital officials.

—THEODORE H. SWEETSER, M.D.

**PRINCIPLES OF BACTERIOLOGY.** By Arthur A. Eisenberg, A.B., M.D., Directory of Laboratories, St. John's Hospital, Cleveland. Second edition. Cloth Price, \$2.25. Pp. 214, with 40 illustrations. St. Louis: C. V. Mosby Company, 1923.

This hand-book is originally intended by the author as a text-book for nurses. As such, it is written in simple language and is readable by those who possess little knowledge of medical terminology and phraseology. It covers the entire field of general and special bacteriology.

While too superficial for the student of bacteriology or of medicine, the book is a suitable text for nurses and serves as an excellent guide for laboratory assistants and technicians.

—KANO IKEDA, M.D.

**Abt, Isaac A., Editor** (Professor of Diseases of Children, Northwestern Uni. Med. School Chicago; Attending Physician, Sarah Morris Hospital for Children and of Michael Reese Hospital Chicago.) **Pediatrics.** By various Authors. In 8 vols. Cloth. \$10.00. vol. 3, 1,051 pp., 223 illus. Philadelphia and London: W. B. Saunders Company.

Volume III of Abt's System of Pediatrics maintains the high standard of comprehensiveness found in the first two volumes. A short review of this book cannot do justice to it. It is a miscellaneous volume of twenty-six chapters. There are complete discussions of the physiology and bacteriology of the gastro-intestinal tract. Both the medical and surgical aspects of diseases of the mouth, esophagus, larynx, and bronchi are adequately discussed. A clear, precise description of the "Nem" system of nutrition is given by Pirquet.

The chapter on the "Physiology of Respiration" by Wiggers is indeed a classic.

The chapter by Abt on "Nutritional Disturbances of Infancy" should be read by every general practitioner.

(Books Continued on Page 527)





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

A. J. McCANNEL, M.D. - - - Minot, N. D.

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - Minneapolis, Minn.

OCTOBER 15, 1924

## A GREATER MEDICAL SCHOOL IN MINNESOTA

"Hope deferred maketh the heart sick," and, conversely, hope resurgent means the uplift of the spirit. The antithesis suggests the experience of the University Medical School in the recent past and the immediate present. For the last twelve years its development has been at a standstill.

In 1908, when the University celebrated the unification of medical teaching in Minnesota, Dr. William J. Mayo, medical Regent of the University, said: "Within a few years we shall have a clinical hospital equal to any that any medical institution can show." That forecast has been very slow of fulfillment; the medical faculty has, at times, almost despaired of its fulfillment; but at last there are signs that new energy has been released on the medical campus.

On October 1st the corner-stones of two additional hospital units were laid,—the Todd Memorial Clinic and the Cancer Institute. It was an event in which the President, the Regents, the faculty, the alumni, and the profession, medical and nursing students, and guests from at home and abroad all shared. Addresses were delivered by President Coffman, Dr. Arthur Dean Bevan, Chairman of the Council on Medical Education, and Dr. Edward L. Tuohy, of Duluth, representing the alumni.

The story of the development of the Todd Memorial is an interesting one. The late Dr. Frank Chisholm Todd was an alumnus of the

University of Minnesota. Soon after his graduation in medicine, he entered the faculty of the Medical School. In the course of time he became Chief of the Department of Ophthalmology and Oto-Laryngology. Early he proved his possession of the rarely combined qualities of clinical skill, teaching power, and executive ability. Upon his keen judgment in professional affairs his associates came to rely. This memorial to him is a projection of the mind of the man. "He being dead, yet speaketh."

It will be remembered that Dr. Todd died in the service of the Great War, having filled with distinction the post of Commander of the base hospital at Camp Dodge, Iowa.

After his death his widow found among his papers the outlines of a project into which he had definitely thought his way,—the development of a permanent clinic in his chosen specialty upon the University campus. The thing was fragmentary, but the pieces fitted into a perfect plan.

He proposed a hospital pavilion housing a suitable number of beds for the care of patients suffering from diseases of the eye, ear, nose, and throat, the lack of which had seriously embarrassed his own teaching. He wanted it adequately equipped for efficient service. He wanted it to be a center for research. He wanted it manned with full-time men of outstanding ability. He wanted a high order of work done within its walls. He planned the devotion to it of a generous sum from his own modest fortune, and he had already interested others in its support.

Mrs. Todd offered to the University the sum of \$20,000 toward the realization of her husband's plan. Mrs. Edward C. Gale, already a patroness of the University, as her father, Governor John S. Pillsbury, had been its patron during all the years of his long life in Minnesota, duplicated Mrs. Todd's gift. Mrs. Emory Mapes added \$5,000. To the total of these donations the Board of Regents contributed \$127,500. The building these gifts and appropriations have made possible will be completed by the fall of 1925 and will be the fulfillment of Dr. Todd's far-reaching purpose.

The Cancer Institute is being built at a cost of \$250,000 provided by gift from the Citizens Aid Society, founded by the late Mr. George Chase Christian and further sustained by his widow. Certain members of the faculty, notably Dr. Arthur C. Strachauer and Dr. Henry Wireman Cook, have greatly assisted in the determination of this gift to the University. It is intended for the care and treatment of persons afflicted

with cancer, for the broadening of medical and nursing education, and for the promotion of research in this field. It should further increase the University's usefulness to the public.

The Medical School looks to Mr. William Henry Eustis to lay the next corner-stone in its development. His great gift of over a million dollars, for the care and treatment of the crippled and deformed children of the state, should soon give him the opportunity.

The significance of these events rests, not alone in the laying of the corner-stones of these specific beneficences, but in the basis they afford and the inspiration they suggest to the giving of other gifts. The time has come for the super-addition of endowment and of privately contributed funds for buildings to State support. If the University is to develop medical and nursing schools entitled to first rank among the teaching institutions of the country; if it is to train physicians fitly to practice, and scientists to extend the boundaries of modern scientific medicine, and nurses competent to care for the sick and to minister to the public health, these schools must be superlatively equipped with men and women and materials for the task, and all this calls for means beyond the limits of mere maintenance.

The alumni and the profession will be interested to know that the School plans a continuing campaign for endowment and building funds. It expects their help and it will surely get it.

#### THE ANNUAL MEETING OF THE MINNESOTA STATE MEDICAL ASSOCIATION

The fifty-sixth annual meeting of the Minnesota State Medical Association was held at St. Cloud on the 8th, 9th, and 10th instant. The first day was devoted entirely to the meeting of the Council and the House of Delegates, and it proved to be a very interesting meeting for the reason that various committees reported their progress during the year, one of which was the committee on Public Policy and Legislation, which gave a very comprehensive report by Dr. J. T. Christison, which was adopted and ordered printed at the earliest possible moment because it has so much to do with the future work of the legislative bodies.

Dr. H. P. Ritchie, of St. Paul, who was a representative to the annual Congress on Medical Education gave a very brief report which will be published later.

The committee on Section work suggested that the two sections, medicine and surgery, be merged

into one general meeting, patterned after the method of the Tri-State Medical Society. There was a good deal of opposition at first, but it was finally noted that the by-laws did not in any way hold the Association down to any number of sections, but they could, if they chose, arrange the meeting so as to be of more general benefit. As the next meeting is to come to Minneapolis it is expected that it will be practically two-thirds clinics and one-third papers, and even the papers are to be presented in abstract form. In this way it is hoped to create more interest in the meetings, as they certainly have been slumping for some years. By doing away with a good deal of the paper work and presenting the material in clinic form a larger attendance is expected, and a great deal more interest is anticipated. This is the same method as was carried out in Duluth at the Northern Minnesota Association meeting. There were comparatively few papers, but two full afternoons of clinics, and the attendance there was quite equal to the attendance at the State Association meeting.

The Committee on Cancer made its annual report through Dr. Verne C. Hunt, of Rochester, and the same work is expected to be carried on as before.

The Editing and Publishing Committee, of *Minnesota Medicine*, through Dr. John Armstrong, reported on the work of the year, and the secretary, Dr. Drake, read the financial report. Incidentally it may be said that Dr. Drake presented his resignation as secretary, and the question of employing a whole-time secretary was brought up and thoroughly discussed, and finally was left to the discretion of the Council with the understanding that the dues of the Association should not be increased. It might not be out of the way to mention this fact, in passing, that a full-time secretary is a very necessary consideration. To load this work on a practicing physician and expect him to do all of the detail work of the Association and practice medicine for a living is absurd; and if a suitable man can be found he should be secured so that all of his time may be devoted to the building up of the organization. However, this may not be accomplished nor a satisfactory man be found unless he can be attracted by a reasonably good salary. That means an increase in dues all over the state, and just at this present time the members are not altogether enthusiastic about increasing their dues in the local societies or the State Association. But it seems reasonable to infer that every medical man who should be proud to belong to the State Association can afford two or three



dollars extra a year, which would take care of the whole situation. Another fact is the probability of the Medical Defense organization being dropped from the State Association. That means two dollars a year, and that would practically take the place of a new assessment, if it could be accomplished.

A very important committee's report on Hospitals and Medical Education was presented by Dr. J. C. Litzenberg, in which an attractive method of presenting the clinical methods to the men in various counties could be carried on by the assistance of instructors or teachers who would be willing to go into the country and give a part of their time to such work. The committee's report was adopted, and a hundred dollars was set aside from the general fund for this purpose.

Dr. F. J. Savage read the report for the Committee on Public Health, which also dealt with the amalgamation of various organizations and also the legislative bodies which might function together.

The meeting, on the whole, was a very satisfactory one, and there were nearly three hundred registrants. The papers were all of high order and the meeting-places were ample to accommodate those present. The morning sessions were given up to either medical or surgical section work and the afternoon meeting was a general session. In spite of the attendance, it becomes evident that there is something amiss with the Association meetings, and this outside of the number of registrants. Either the men are losing interest in a protracted meeting or they find that they cannot hear the speakers distinctly, which has much to do with the success of a paper, and the man who is able to read so that his audience can hear him gets his subject over, while the man who is either unaccustomed to speaking or who mumbles his words and speaks to the back of the stage gets very little credit for his work. The editor still maintains that a school of elocution should be established for men who are to speak at the sessions of all medical organizations.

The social side of the St. Cloud meeting was carried out with remarkable results. On Thursday evening, instead of the usual banquet, the Committee on Entertainment gave a musical program in a hall adjacent to the Breen Hotel, where there was much dancing and some card-playing, and a great deal of enjoyment. The Minnesota Alumni had an annual meeting and luncheon at the Breen Hotel Friday noon. Dr. H. W. Goehrs, of St. Cloud, was in charge. The wives of the visiting members and the wives of

the committee men were given a tour around the city, winding up, only temporarily, at the State Reformatory, where a luncheon was served and addresses were given by the chief of the Reformatory, C. E. Vasaly, and where a concert was given by the famous Reformatory band. As soon as they were released from the Reformatory the visitors went to the Watab Pulp and Paper Company's plant. At all events they had a very enjoyable time riding around the city, which has grown wonderfully and has improved in every respect.

The question came up as to where the next meeting should be held, and the House of Delegates promptly accepted the invitation to meet in Minneapolis in the second week of October, 1925. It is noted in looking over the former meeting places that the Association has been out of the Twin Cities thirteen times from its inception in 1869; and out of these thirteen times six of the meetings have been held in Duluth, and the other meetings scattered,—in Winona, Rochester, Mankato, and Stillwater. If the Association continues to follow the method of holding a largely clinical meeting, it will be necessary, then, to have the meetings in one of the three large cities,—Minneapolis, St. Paul, or Duluth,—as in no other place can sufficient clinical material be obtained.

The President, Dr. Archibald MacLaren, was unavoidably detained at home by illness, and the meeting was presided over by Dr. E. T. Sanderson, of Minneota.

#### THE INTER-STATE POSTGRADUATE ASSEMBLY OF AMERICA

This rapidly growing postgraduate school of America, which is directed by the Tri-State District Medical Association, meets in Milwaukee on October 27-31, and the program is, as usual, a very attractive one. There is no doubt but that Milwaukee will repeat its success of two years ago. This is one of the most active bodies that has ever been organized, and Milwaukee thinks so much of the organization that they have constructed, at an expense of over fifteen thousand dollars, an amphitheater on the floor of the Marquette University gymnasium which will accommodate with easy seats an audience of 2,500, and that number the committee expect will be present at Milwaukee.

This meeting is looked upon as rather a strenuous one, but if a man goes into it with the intention of learning all he can he does not mind the discomforts which it apparently entails. The

meetings begin at 7:00 A. M., and usually last over until 10:30 P. M. Most of the time is allotted to diagnostic and demonstration clinics and only a part of the time is given to papers. In looking over the program one sees interspersed here and there the names of men famous in their specialties both in medicine and surgery and drawn from all parts of the United States, from New York to San Francisco, and from New Orleans to and including men who come from Canada and who are members of the organization. The speaker of the house, so called, is Dr. G. V. I. Brown, a man who is able to sit throughout the entire sessions of five days and almost uninterruptedly preside over the meetings. He certainly must have great staying qualities and certainly must be a man of good physical condition, or he could not endure the routine of his duties. Dr. Brown is able at all times to control the speaker and prevent him from overstepping the time allotted to him, and that is something which a great many presiding officers cannot do.

This year the meeting has been extended over one day, that is from Monday morning until Friday evening, one day longer than is usual. There are a number of foreign guests of the Assembly, who are expected to be present, from Paris, London, Sydney and Melbourne, Australia, and Auckland, New Zealand, and one from Canada. These men will be seen and probably heard at the banquet which follows the last meeting on Friday and which will be a large affair because it will include not only members of the profession but prominent citizens and members of civic bodies in Milwaukee.

One who has not attended one of these meetings cannot comprehend the scope of the Tri-State District Medical Association. The committees are indefatigable in their work and they are not subject to many changes in their personnel, consequently the older men are retained from year to year and know how to work the thing in a perfectly well-balanced and organized manner. The visitor is apt to feel that if he stays for fifteen hours in an assembly room he is overworked, but if he stops to realize that the subject is changing every twenty minutes his interest does not lag. He is like the man in the position where he wants to hang on to life and work because he does not know what in the devil is going to happen in the next fifteen minutes; hence he sits and listens, hearing something of interest, not necessarily in his own line of work, but in someone else's line, thereby broadening his point of view and gaining some real information.

This year Dr. Clifford U. Collins, of Peoria,

Illinois, is the presiding officer, that is, he is the president. We strongly urge our readers to make a strenuous effort to attend the meeting in Milwaukee this year and to stay throughout the entire meeting if possible, regardless of the fact that one may be obliged to get up at six o'clock in the morning and go to bed at eleven at night. It will be well worth while, and all will certainly find the aphorism true, that "It is a great life if you don't weaken!"

### WHY SHOULD I JOIN A MEDICAL SOCIETY?

This question presents itself to every man who practices medicine, and does so with such force that every medical man answers it in a definite form, in order to satisfy his sense of fairness toward the public and his fellow-practitioners. As association with one's fellow-practitioners develops men so coming into contact with each other, the physician who segregates himself cannot bring to his work such knowledge as the public is entitled to and has reason to expect from him. As the highest professional standard can be maintained only by organized effort, and as professional compensation, in the form of fees, is determined by professional standards, the man who profits by the compensation thus fixed without proper effort, which means co-operation, to maintain the standards, takes advantage of his fellow-practitioner.

Let us turn this argument into a concrete statement of the actual facts:

If 75 or 80 per cent, or almost any other per cent, of the physicians in a state organize themselves into county, district, and state groups or societies, they can set high standards for the men who practice in the state, can organize work for preventive medicine, can protect, in a large measure, the public from the charlatans in medicine, and can so educate public opinion that proper fees will be paid the physician. Now, this is just what medical men have done in this field,—in Minnesota, the Dakotas and Montana. This work has been done under the leadership of a few men in each state, followed, however, by most of the medical men in the states named. But some have refused to co-operate and so have made the work harder and even less effective. Thus they do not play the game fairly—fairly either to the public or to their fellow-practitioners.

The 100-per-cent professional man, especially the physician, owes his profession and the public a large obligation, and *noblesse oblige* is not fic-



tion, for the obligation of "honorable and generous behavior associated with high rank or birth" binds him in all his dealings with the public and with his fellow-practitioner.

If medicine is a 100 per cent profession, no man can be a laggard and belong to it.

## THE SOO SURGICAL ASSOCIATION PAPERS

We begin in this issue the publication of the papers read at the sixteenth annual meeting of the Soo Surgical Association held in Minneapolis in December last. These papers deal largely with traumatic surgery, discussing the problems that almost daily confront the general practitioner, mainly in the form of emergency work; for instance, the paper of Dr. Goss, on another page, deals with burns and their treatment, and is a timely paper, giving the general practitioner a clear and complete statement of the up-to-date methods of treatment of the various kinds of burns.

In our next issue we expect to publish a paper on cardiac diagnosis and treatment, equally meritorious and comprehensive.

The Soo Surgical Association was established sixteen years ago by Dr. John H. Rishmiller, the Chief Surgeon of the Soo Railway system, covering about 4,500 miles and requiring a very large staff of physicians and surgeons.

This Association, we believe, was the first railroad medical organization to admit to its membership only men who are members of the American Medical Association, thus recognizing the benefit of membership in one's local, state, and national medical societies.

THE JOURNAL-LANCET has been the official organ of the Soo Association for a number of years, and is glad to have the Association's excellent papers to publish in its columns.

## NEWS ITEMS

Dr. O. J. Fortun has moved from Grand has moved to Los Angeles, Calif.

Dr. O. J. Fortun has moved from Grand Forks, N. D., to Everett, Wash.

Dr. O. S. Olson, of West Duluth, has returned from Chicago where he has been doing postgraduate work.

Next year's meeting of the American Medical Association will be held in Atlantic City on May 25-29, 1925.

Dr. Earl J. Bratrude, of Sacred Heart, was married last month to Miss Edna M. Jacobson, of Minneapolis.

Dr. Herman Dreschler, of St. Paul, has returned from Europe where he went to make a special study of goiter.

Dr. I. D. Webster, who formerly practiced in Mankato, died last week in San Diego, Calif., where he had practiced for the past twenty years.

The Minnesota State Board of Health is to conduct seven clinics in Polk County under the provisions of the Sheppard-Towner act of Congress.

Drs. N. D. Doyle and John J. Hunter, of Sydney, Australia, will be at the Mayo Clinic this month to demonstrate their operation for spastic paralysis.

The Huron (S. D.) Medical Society devoted its October meeting to case-reports, or, as the Secretary calls it, the relation of interesting experiences.

The question of a bond issue for building a tuberculosis sanatorium for Winona County will not be submitted to the voters of the county next month.

Dr. H. M. Juergens has moved from Sanborn to Belle Plaine. Dr. Juergens is a graduate of the Medical School of the University of Minnesota, class of '21.

Dr. Louis W. Wilson, Director of the Mayo Foundation, and Mrs. Maude H. Mellish, the literary editor of the Mayo Clinic, Rochester, were married on August 28.

Dr. L. E. Combacker has disposed of his general practice at Osceola, Wis., and is now taking a course in eye, ear, nose, and throat work at the University of Minnesota.

Dr. Charles R. J. Kellam, of Heron Lake, died last month at the age of 87. Dr. Kellam graduated from Dartmouth Medical School with the class of '69, and had practiced many years in Minnesota.

Dr. W. C. Fawcett, President, and Dr. A. J. McCannel, Secretary, of the North Dakota State Medical Association, have planned to visit some of the county and district societies in the northern part of the state.

The October *Pennant*, the monthly journal or pamphlet of the North Dakota Tuberculosis Association says the Child Health Demonstration at Fargo, financed by the Commonwealth Fund, is doing splendid work.

The Governor of North Dakota has re-appointed the following physicians members of the State Board of Medical Examiners for three years: Dr. T. L. Depuy, Jamestown; Dr. V. J. LaRose, Bismarck; Dr. W. F. Sihler, Devils Lake.

Dr. E. O. Olson, of Franklin, has purchased the practice of Dr. E. F. Lundquist, of Pine Island, and Dr. Lundquist has moved to Minneapolis. Dr. Lundquist is a graduate of the Medical School, of University of Minnesota, class of '18.

The Minnesota Section of the American Water Works Association will hold its fourteenth annual meeting in Minneapolis on November 14. Subjects of interest to health officers will be discussed, including the subject of goiter in its relation to water supply.

The Woman's Auxiliary of the Hennepin County Medical Society (Minneapolis) entertained the members of the Auxiliary of the Ramsey County Medical Society (St. Paul) last month at a luncheon and talk on art given at the Minneapolis Art Institute.

Dr. C. H. McDonell, who has practiced in Hankinson, N. D., for nearly twenty years, has moved to Winona, Minn. Dr. McDonell will be succeeded by Dr. Benjamin Thane, of Barrett, Minn., who is a graduate of the University of Minnesota, in the class of '17.

Dr. George S. Cabot, of Minneapolis, was married the last of August to Miss Grace Eleanor McCrum, of Thief River Falls. Dr. Cabot is a recent graduate of the Medical School of the University of Minnesota, and will soon finish his internship at the Minneapolis General Hospital.

Dr. Archibald Beard and Dr. Henry E. Michelson addressed the Wright County Medical Society at their monthly meeting on October 7. The topics discussed were "The Modern Treatment of Diabetes," and "Some Practical Points in the Diagnosis and Treatment of Skin Diseases."

The Lymanhurst School, of Minneapolis, for tuberculous children now has 130 pupils, and 70 new ones are expected this year. Dr. Harrington, the City Health Commissioner, has asked for funds to build a platform on the roof of the building so that the pupils can do most of their studying in the open air.

Dr. James B. White, of Belle Plaine, died on August 30 at the age of 60. Dr. White was a

graduate of the Medical School of the University of Minnesota, class of '91. After practicing in Faribault and Montgomery for fifteen years, he moved to Belle Plaine, his boyhood home, and practiced there until his death.

At its meeting last month the Nicollet-LeSueur County Medical Society urged the physicians of the two counties to join this society making it wholly representative of the two counties. At this meeting papers were presented by Dr. Swan Erickson, of LeSueur; Dr. J. F. Norris, of St. Peter; and Dr. Arthur M. Thompson, of Cleveland.

Dr. L. O. Simenstad, a graduate of Rush, who recently completed his internship at the Ancker Hospital, St. Paul, has taken over the practice of Dr. L. E. Combacker, of Osceola, Wis. Dr. Simenstad has recently been the director of the Traveling Health Clinic of North Dakota. Dr. Simenstad was married last month to Miss Agnes M. Berget, of Warren, Minn.

Sioux Falls, S. D., admirably handled the Mississippi Valley Antituberculosis Conference held in that city last month. The attendance was large, and the leading men of the country engaged in antituberculous work were on the program for papers or discussions. The South Dakota Public Health Association joined the Conference for a joint session.

The health commissioner of Minneapolis says the smallpox situation in Minneapolis and the state is serious, and he is strenuously urging vaccination. In the first five days of October there were five deaths from smallpox in Minneapolis. One case was that of a nurse who was sick only two days. Several thousand school children have been vaccinated since the schools opened.

Dr. John A. Monahan, of Minneapolis, died on the 13th instant at the age of 57. Dr. Monahan graduated from the Minneapolis College of Physicians and Surgeons in the class of '02, and began the practice of medicine the same year in Minneapolis and continued to the time of his death. He was a consulting surgeon on the staffs of Asbury and St. Barnabas Hospitals, and had a large private practice.

Dr. Sigmoid Rosenthal, of Aberdeen, S. D., was expelled from the Aberdeen (1st) District Medical Society last month upon charges preferred against him by Dr. R. D. Alway, of Aberdeen, for unprofessional conduct. The charges were based upon a paper written by Dr. Rosenthal and printed in the *Aberdeen Evening News*. We shall publish in our next issue the full report



of the Society's Board of Censors and the newspaper article.

Dr. Horace H. Witherstine, of Rochester (Minn.), died on October 2, at the age of 72. Death was caused by the overturning of his automobile when on the way to see a patient. Dr. Witherstine graduated from Rush with the class of '86, and soon began practicing in Rochester. He was a prominent figure in the state for many years, and besides holding several city offices, including that of mayor, in Rochester, he was in the State Senate for two terms, and edited the *Rochester Bulletin* for several years. Dr. William H. Witherstine, of Grand Forks, N. D., is a son of Dr. Horace H. Witherstine.

Dr. Archibald MacLaren, of St. Paul, died on October 12, at the age of 66. Dr. MacLaren was a graduate of Columbia, class of '81, and had practiced in St. Paul nearly forty years. He was a member of many medical societies, and was president of the Minnesota State Medical Association the past year, and would have presided at the annual meeting of the Association held at St. Cloud last week except for the illness which terminated in his death. Dr. MacLaren was a distinguished surgeon, was Associate Professor of Surgery in the Medical School of the University of Minnesota, and a genial gentleman who will be greatly missed in medical circles.

The annual meeting of the Minnesota State Medical Association was held in St. Cloud last week with only a fair attendance. The program was a good one, but it was along the lines of past programs and did not elicit enthusiasm. A change to the dry clinic program was voted. The following officers were elected for next year: President, Dr. W. L. Burnap, Fergus Falls; first vice-president, Dr. A. S. Hamilton, Minneapolis; second vice-president, Dr. John N. Libert, St. Cloud; third vice-president, Dr. C. W. More, Duluth; Secretary, Dr. Carl B. Drake, St. Paul; treasurer, Dr. F. L. Beckley, St. Paul; councilors,—Dr. W. H. Condit, Minneapolis (re-elected), Dr. F. H. Dodge, LeSeuer (re-elected), Dr. G. S. Watham (to succeed Dr. Burnap); delegates to the A. M. A.,—Dr. J. L. Rothrock, St. Paul, Dr. T. L. Chapman, Duluth, and Dr. J. C. Litzenberg, Minneapolis. Editorial notice of the meeting appears on another page.

#### For Sale

Tycos sphgmomanometer, Victor centrifuge, Witherstine record cabinet, Paragon table. Address 2168 Carroll Ave., St. Paul.

#### Position Wanted

By a thoroughly competent woman as industrial nurse or in a clinic or as office attendant with a group of physicians in Minneapolis.

#### Record Clerk Wanted

By the Winona (Minn.) General Hospital. Preferably a graduate nurse. Address Superintendent, Winona General Hospital, Winona, Minn.

#### Office Equipment Wanted

I desire to purchase an examining table, an electric sterilizer, a small cabinet, some instruments, and a desk. Must be cheap. Address 147, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Minneapolis Office Space to Sublet

Very desirable office space at 323 La Salle Building, Minneapolis, to be sublet by Drs. Willson, Cabot, & Wohlrabe. For information call at the office or telephone Main 3220.

#### Technician Desires Position

A technician who has had six months experience in a hospital laboratory seeks work. Can also do office and stenographic work. Moderate salary will be accepted. Address 146, care of this office.

#### Office Position Wanted

By a young woman who has been two and a half years in a physician's office. A fair typist who can take medical reports in long-hand. Best of references. Wages, moderate. Address 151, care of this office.

#### Assistant Wanted

As soon as possible, to do general work in clinic. New modern hospital and well-equipped office. Will pay \$200 per month and all expenses pertaining to practice. Address Kittson County Clinic, Hallock, Minnesota.

#### Good South Dakota Location Open

In richest farming section of state. Good roads; fine people; competition 20, 25, 30, and 35 miles. Will introduce successor. Small investment to pay for drugs and office equipment. Address 152, care of this office.

#### Technician Wants Position

A young woman with three years experience wants a temporary or permanent position. Can do all routine work and blood chemistry. Now taking basal metabolism and Wassermanns in a city laboratory. Address 140, care of this office.

#### Physician Wanted

To locate in Hosmer, Edmunds County, South Dakota. A good business town surrounded by a large territory. Offices furnished free of charge in the rear of the drug store. Please inquire of A. D. Pietz, Hosmer, S. D.

**A Good Opening**

Excellent opening in Southwestern Minnesota for cost of drugs and office furniture. Good territory; only physician; desires to locate on coast. Good roads; four-year high school; mixed community. Address 135, care of this office.

**Position Wanted by X-Ray and General Laboratory Technician**

A graduate of the Minneapolis Hospital Laboratory in x-ray and general laboratory work, with experience in St. Mary's and other hospitals. Best of references. Address 153, care of this office.

**Wanted, An X-Ray and Laboratory Nurse**

Position open in new modern Tuberculosis Institution in Northern Minnesota; excellent opportunity for one thoroughly familiar with x-ray technique and general laboratory methods, also to assist in heliotherapy. Complete maintenance at hospital. State salary desired, references, and when available. Address 156, care of this office.

**Physician's Office Furniture, Etc., For Sale**

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford, N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

**Operating Table and Instrument Case for Sale**

I have for sale one large-sized steel and plate-glass instrument case, suitable for either physician's office or hospital operating room; has combination lock and is enameled white; a bargain. Also one Allison office operating table, golden oak, in fair condition. Write or call upon Dr. Hugh J. Tunstead, 1126 Metropolitan Bank Bldg., Minneapolis.

**Physician Wanted**

In a central Minnesota town of 300; splendid farming community; collections always nearly 100 per cent; Scandinavian and German community. Good high school; two churches; two banks; creamery; etc. Competition 15, 8, 16, and 15 miles. A house can be rented for \$20 a month. Good man can make money from the start. Address 142, care of this office.

**Physician Wanted**

Reliable physician in a Northern Minnesota town of 375 inhabitants, about 3,000 people in community. Physician's territory much larger, including five villages and districts. Nearest competition 22 miles North, 47 West, 45 South, none East. Excellent dairying and farming district. Good office and residence quarters available. Good man can run receipts to \$5,000 a year in six months time. Village and townships health officer business guaranteed to resident physician, which amounts to about \$900 per year. Applicant must furnish references. Address 154, care of this office.

**Practice for Sale in South Eastern Minnesota**

Practice free to buyer of my drug-store. A complete stock of drugs, all that goes with a well-conducted drug-store. It will invoice \$3,500 to \$4,000.

Town of 280, another inland town 250 within four and one-half miles which is ten miles from any competition in practice and drug-store. Competition 10, 20, 18 and 15. Only doctor and drug-store in town. Rich German community; all is cash. A German who is a catholic or Lutheran and who does his own surgery will make ten thousand per year. Three churches, high school, a fine bank, creamery, and all kinds of business; modern town with 24-hour electric service, water works, etc. Don't write if you have no money. Address 149, care of this office.

**(Books Concluded)**

tioner. It is a mine of practical information in the diagnosis and treatment of feeding disturbances of infancy.

Marriott's article on "Celiac Disease" is a concise, accurate analysis of this condition.

All the other chapters are carefully prepared and serve the purpose of the general practitioner as well as the specialist.

—MAX SEHAM, M.D.

**DISLOCATIONS AND JOINT-FRACTURES.** By Frederic J. Cotton, M.D., Visiting Surgeon to the Boston City Hospital; Associate in Surgery, Harvard Medical School. Second Edition, Reset. 745 pages with 1393 illustrations from drawings by the author. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 net.

With the addition of this volume to the library, the Hennepin County Medical Society possesses a fairly large selection of texts on fractures. This book deals with some of the most difficult types of pathology in the field of orthopedic surgery. It is nicely written and is especially valuable in that it is for the most part a strictly original composition from the practice of the author. The drawings and sketches are by the author. In this regard there are many suggestions in this volume which attempt to decry the errors of earlier literature and several points of advance. Among them a few will bear repetition. Gun-stock deformity is not due to fractures of the condyles, but to supracondylar fracture. X-rays early are not necessary. They tend to diminish the ability of the practitioner to diagnose and treat correctly. Plates made after the first reduction are advisable, however. To depend too much on the x-ray tends to lessen the ability to reduce the fracture by palpation. There are advantages and disadvantages in this discussion on x-raying fractures; and it is well to bear in mind the record of the case under this heading. The author cautions about using traction in shoulder fractures because of the tendency to downward luxation of the shoulder. The loss of growth of bone from epiphyseal separation is extremely rare. Spasm on rotation of the forearm is the differential of fracture of the radius—absence of this with spasm on extension and flexion is contraindication. Another presents a series of 21 cases of fracture for improper setting with correction of deformity in the hip. The last chapter in the book is devoted to various apparatus for the reduction and treatment of fractured or dislocated limbs. The work is very well written and thoroughly presented, which, together with its originality, makes it very commendable.

—DANIEL H. BESSESEN, M.D.



# SAMPSON LECTURES ON PHYSIOTHERAPY

CURTIS HOTEL, MINNEAPOLIS - NOV. 3rd to 8th

---

A complete exposition of all the physics, basic physical laws, physiological reactions, technic of application, indications (Pathology) and contra-indications, governing the successful use of the various physical remedies that have proven of practical value to the medical man.

The technics taught in this course are based upon the private and public research into the field of physics carried on for many years by Doctor Sampson, and, with a single exception, were originated, demonstrated, tested and proven clinically successful upon a huge scale in the largest physiotherapy clinic in America—the Fox Hills Army and U. S. Public Health Service General Hospital—where Doctor Sampson for several years was Reconstruction Officer through the peak of the Reconstruction Period following the late war.

**This course is and always has been restricted to ethical medical men, or their vouched for assistants.**

The entire course consists of ten lectures in one week and ten practical clinical demonstrations in the following week. These lectures and practical demonstrations have, in the past, been given, at the rate of two each day for five consecutive days, each week. By working three periods for each day for six days—Monday to Saturday inclusive—the two weeks have been condensed into one with the omission of only one lecture which was a short demonstration lecture given at the end of the first week, but which is duplicated in the practical week. **Nothing** has been left out, but the two weeks' work is now covered in one week, thus saving a week's practice for the busy practitioner.

The fee for each of the separate weeks was \$25.00. The fee for the double course in one week is \$50.00. Make checks payable to C. M. Sampson, M.D. and hand them to the secretary the first morning of the lectures.

NOTE—Physicians who have taken the lectures, but not the practical demonstration course may attend this whole week for \$25.00, or may take the last three days of practical work, if preferred, for this same fee, or vice versa, those who have taken the clinical week but not the lectures may do likewise.

The Pengelly X-Ray Company, La Salle Building, Minneapolis are authorized to make reservations and will supply any detailed information desired.

C. M. SAMPSON, M.D.

# THE JOURNAL- LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 21

MINNEAPOLIS, NOVEMBER 1, 1924

Per Copy, 10c  
A Year, \$2.00

## TRANSACTIONS OF THE NORTH DAKOTA STATE MEDICAL ASSOCIATION—1924

### OFFICERS AND COMMITTEES

#### PRESIDENT

WILLIAM C. FAWCETT, M. D.....Starkweather  
PRESIDENT-ELECT

JOHN H. RINDLAUB, M. D..... Fargo

#### FIRST VICE-PRESIDENT

N. OLIVER RAMSTAD M. D.....Bismarck

#### SECOND VICE-PRESIDENT

THOMAS MULLIGAN, M. D.....Grand Forks

#### SECRETARY

ALEX. J. McCANNEL, M. D.....Minot

#### TREASURER

WILLIAM W. WOOD, M. D.....Jamestown

#### COUNCILOR—CASS COUNTY SOCIETY

P. H. BURTON, M. D.....Fargo

#### COUNCILOR—DEVILS LAKE DISTRICT SOCIETY

G. F. DREW, M. D.....Devils Lake

#### COUNCILOR—GRAND FORKS DISTRICT SOCIETY

G. M. WILLIAMSON, M. D.....Grand Forks

#### COUNCILOR—NORTHWESTERN DISTRICT AND KOTANA SOCIETIES

E. M. RANSOM, M. D.....Minot

#### COUNCILOR—SHEYENNE VALLEY DISTRICT SOCIETY

F. M. WICKS, M. D.....Valley City

#### COUNCILOR—SIXTH DISTRICT SOCIETY

F. R. SMYTH, M. D.....Bismarck

#### COUNCILOR—SOUTHERN DISTRICT AND RICHLAND COUNTY SOCIETIES

L. B. GREENE, M. D.....Edgeley

#### COUNCILOR—STUTSMAN COUNTY SOCIETY

P. G. ARTZ, M. D.....Jamestown

#### COUNCILOR—TRAILL-STEELE COUNTY SOCIETY

O. A. KNUTSON, M. D.....Mayville

#### COUNCILOR—TRI-COUNTY SOCIETY

CHARLES MacLACHLAN, M. D..New Rockford

### HOUSE OF DELEGATES

#### CASS AND RANSOM COUNTY SOCIETIES

H. W. MILLER, M. D.....Casselson

#### DEVILS LAKE DISTRICT SOCIETY

F. W. SIHLER, M. D.....Devils Lake

#### GRAND FORKS DISTRICT SOCIETY

THOMAS MULLIGAN, M. D.....Grand Forks

#### KOTANA COUNTY SOCIETY

(Not Represented)

#### NORTHWESTERN DISTRICT SOCIETY

H. M. ERENFELD, M. D.....Minot

P. A. NESTOS, M. D.....Minot

#### RICHLAND COUNTY SOCIETY

BLAKE LANCASTER, M. D.....Wahpeton

#### SHEYENNE VALLEY SOCIETY

E. A. PRAY, M. D.....Valley City

#### SIXTH DISTRICT SOCIETY

C. E. STACKHOUSE, M. D.....Bismarck

H. A. BRANDES, M. D.....Bismarck

#### SOUTHERN DISTRICT SOCIETY

F. W. FERGUSON, M. D.....Kulm

#### SOUTHWESTERN DISTRICT SOCIETY

S. W. HILL, M. D.....Regent

#### STARK COUNTY SOCIETY

J. W. BOWEN, M. D.....Dickinson

#### STUTSMAN COUNTY SOCIETY

W. W. WOOD, M. D.....Jamestown

#### TRAILL-STEELE COUNTY SOCIETY

T. J. GLASSCOCK, M. D.....Finley

#### TRI-COUNTY SOCIETY

JOHN CRAWFORD, M. D.....New Rockford



## COMMITTEES

## COMMITTEE ON PUBLIC POLICY AND LEGISLATION

V. J. LAROSE, M. D.....Bismarck  
 W. H. PORTER, M. D.....Calvin  
 CHAS. MacLACHLAN, M. D.....New Rockford

## COMMITTEE ON MEDICAL EDUCATION

H. E. FRENCH, M. D.....University  
 G. J. McINTOSH, M. D.....Devils Lake  
 H. H. HEALY, M.D.....Grand Forks

## COMMITTEE ON TUBERCULOSIS

J. G. LAMONT, M. D.....Dunseith  
 FANNIE DUNN QUAIN, M. D.....Bismarck  
 JAMES GRASSICK, M. D.....Grand Forks

## COMMITTEE ON PUBLIC HEALTH

A. A. WHITTEMORE, M. D.....Bismarck  
 C. J. MCGURREN, M. D.....Devils Lake  
 F. R. SMYTH, M. D.....Bismarck  
 A. W. GUEST, M. D.....Jamestown  
 H. E. FRENCH, M. D.....University

## COMMITTEE ON MEDICAL HISTORY OF THE STATE

GEO. M. WILLIAMSON, M. D.....Grand Forks  
 JAMES GRASSICK, M. D.....Grand Forks  
 H. G. WOUTAT, M. D.....Grand Forks

## COMMITTEE ON MEDICAL DEFENSE

E. A. PRAY, M. D.....Valley City  
 W. H. BODENSTAB, M. D.....Bismarck  
 R. W. PENCE, M. D.....Minot  
 H. W. F. LAW, M. D.....Grand Forks  
 C. N. CALLANDER, M. D.....Fargo  
 F. W. FERGUSON, M. D.....Kulm

## PROCEEDINGS OF THE HOUSE OF DELEGATES

FIRST SESSION—TUESDAY, SEPTEMBER 9, 1924

The first meeting of the House of Delegates of the North Dakota State Medical Association was called to order at the Masonic Temple, Bismarck, Tuesday evening, September 9, 1924, by the President, Dr. James Grassick, Grand Forks.

The Secretary called the roll, and the President announced that a quorum sufficient to do business was present.

The first order of business was the reading of the minutes of the previous meeting.

The Secretary announced that the minutes had been published in *THE JOURNAL-LANCET*, the Association's official organ.

It was moved that inasmuch as the minutes had been published in *THE JOURNAL-LANCET* their reading be dispensed with. Motion seconded and carried.

The next order of business was the report of the Secretary, Dr. H. J. Rowe, Lisbon.

## SECRETARY'S REPORT

## THE ANNUAL MEETING

The annual meeting this year being set back until late in the season has resulted in many of the members being rather slow in forwarding their dues, making it impossible for the secretaries of component societies to make their annual reports until very late; and as a consequence the roster could not be completed. The tardiness of members in paying their dues will result in not a few having their names omitted in the official roster. The American Medical Association insists on knowing who is entitled to fellowship, and the only way to inform headquarters is to print the roster, incomplete though it be, and forward the same for their guidance. If members were more prompt in the payment of their

dues, it would greatly facilitate the local secretaries in making their annual reports, and it would be of great advantage in making out a complete roster earlier in the year.

## SOCIETIES

All the societies, except Kotana, have made reports of the election of officers. This society has but six members in good standing. Repeated requests for the result of election and for a full and complete report from the society have been ignored, and to date neither the acting president nor the secretary is in good standing. Unless the physicians in that locality wake up and do business as constitutionally provided, it would seem best to abandon the society and let those who desire to continue their membership attach themselves to the Northwestern Society at Minot.

## MEMBERSHIP

The membership has materially fallen off for the present year, more so than in any previous period in the history of the North Dakota State Medical Association. This is due, not wholly to removals, of which there have been quite a few who have set their stakes in California and many eastern states, but probably to indifference, it being so easy to put off until to-morrow what should be done to-day. I am not prepared to say that the dropped members are the result of lack of notices from the secretaries, for they, like other men in like pursuits, have their own work to do and their work as clerical officers could be materially lessened if members would be prompt in paying their annual dues instead of procrastinating.

The present membership of the state Association is 365, which is quite a falling off from the reported membership of previous years. It is a singular coincidence that all the doctors that have left the state were active members while residing in the state. There are a few physicians in the state that have never affiliated with any local society and as a consequence are not numbered with the active progressive physicians within our borders. From the official directory prepared by the American Medical Association it appears that only about two-thirds of the doctors living within the state are members of the State Association.

It goes without saying that if all the regular practitioners could be induced to unite with a component society it would materially increase the membership and be very beneficial to those that connected themselves with the Association. To go it alone and isolate themselves from their neighbor practitioners is an injustice to the people they serve, and it soon makes a rusty practitioner of one who insists on going it alone, unwilling to rub elbows with his fellows.

#### MALPRACTICE SUITS

We are still paying the expenses in malpractice suits. During the past year these cases were adjusted. A settlement was effected in the Dr. Pence malpractice suit, the costs being \$50.00. The expenses of trial in the suit of Mabel Neil versus Dr. King amounted to \$145.00, making a total for the year to date of \$195.00.

Having removed from the state, I retire from the office held for 19 years and I bespeak for my successor the same generous courtesy that has been extended to me during my incumbency.

Fraternally,

H. J. ROWE, M.D., Sec'y

Dr. F. R. Smyth moved that the Secretary's report be accepted and placed on file. Motion seconded and carried.

#### REPORT OF THE CHAIRMAN OF THE COUNCIL

Dr. F. R. Smyth, Bismarck: There has been no business presented to nor meetings of the Council held since the last annual session, at Grand Forks.

#### REPORTS OF COUNCILORS

**Sixth District**—Dr. F. R. Smyth, Bismarck, presented the following report:

The Sixth District consists of an area of 200 miles in width by 150 miles in length and comprises at least one-fourth of the area of the whole State of North Dakota. The Councilor has not been able to cover all this immense territory, but during the past year has visited at least five counties, some of them several times, and conferred with different physicians. He has also interviewed physicians from other counties in the District and is fairly well familiar with medical conditions in the District. Perhaps the most notable action taken has been that of the Sixth District Society to promote efficient and reliable service at the Bismarck Branch State Laboratory. This was effected by appointing a committee which conferred with the authorities responsible and finally secured service that has been satisfactory to the physicians in the territory served and of benefit to the health of the people. Considering constant advances being made in the science of medicine and urging of higher standards of qualification of those engaged in the practice it is an absolute necessity that the methods of public health laboratories should progress and be an aid and help in the control and treatment of disease and preservation of health.

**Tri-County District**—Dr. Charles MacLachlan, New Rockford, presented the following report:

Since the last annual meeting we have had eleven well attended meetings.

May 24, 1923, at New Rockford.

July 20, 1923, at Harvey.

August 24, 1923, at New Rockford.

October 5, 1923, at Fessenden.

November 27, 1923, at New Rockford.

January 11, 1924, at Carrington.

April 11, 1924, at New Rockford.

May 23, 1924, at Fessenden.

June 26, 1924, at Bowdon.

August 1, 1924, at Harvey.

September 5, 1924, at New Rockford.

These meetings have had an average attendance of seventy per cent of the membership. Interest in the meetings we feel is better sustained by our method of holding the meetings at different towns throughout the District during the summer months while the automobiles can be used for transport and concentrating upon the towns most accessible by rail during the winter. Our scientific program has for the most part consisted in the recital and discussion of clinical cases of interest. At the last meeting, however, Dr. Josephine Stickelberger, of Oberon, a former member, who retired from practice some ten years ago, and was recently readmitted to membership, gave a very interesting résumé of her experience with a case of diabetes occurring some two years ago in her own family, a daughter then aged about eleven years whom she personally conducted to the clinic of Dr. Banting at the University of Toronto, where the girl was treated with the pancreatic extract soon after its discovery and prior to standardization. The daughter, normal from outward appearance in every respect, justified the belief in the efficacy of insulin.

Our membership has increased by the addition of Drs. E. Linker, of Goodrich, and Josephine Stickelberger, of Oberon. We have not lost any members. Our entire membership is strongly opposed to holding the annual meeting so late in the year, and petition that the meeting be held annually the Wednesday and Thursday occurring four weeks after the corresponding days of the week of the American Medical Association, preferring June or early July, when practice in the country town is more quiet and the meeting place can more easily be reached by automobile.

Your Councilor regrets being unable this year to make his customary visit to the members composing the Tri-County Society.

**Northwest District**—Dr. E. M. Ransom, Minot, made the following report:

We have a total membership of 60. The average attendance during the past year was 18. We have had six meetings since the last annual meeting, and at these meetings we have had a number of interesting papers. One meeting was the annual election and dinner dance. One meeting was entirely a clinical one.

Two items of some importance to our local Society came up during the year. One was the appointment of a committee of three members to consider the proposition of malpractice insurance, which most of our own men carry, with a view to deciding whether we could get insurance that would be as efficient but cheaper than the one decided on by the State Association. That committee reported that we could get efficient insurance at a cheaper rate.

Another matter we took up during the past year



was the organization in Minot of a doctor's credit and collection agency. That was voted on favorably and resulted in our having printed a uniform set of statement blanks, which all the doctors adopted and are now sending out. All accounts requiring collection are turned over to the collection agency at the expiration of 60 days. This has resulted in our collecting many accounts that we had considered lost and so far has proven to be a very successful experiment.

I am also Councilor for the Kotana Society, but I have been unable to get anything from them in the past two or three years, so cannot make a report.

**Cheyenne District**—Dr. F. L. Wicks, Valley City, presented the following report:

Our Society has at present 17 members. There are 19 doctors eligible to membership in our district; last year we had 21 members; two of our men have moved away, Dr. Stixrude to Washington, and Dr. Wolverton to Iowa, where he is a member of the State Association.

We have had no deaths during the year.

The following doctors are our officeholders: President, Dr. F. L. Wicks; vice-president, Dr. A. W. MacDonald; secretary-treasurer, Dr. Will H. Moore; delegate, Dr. E. A. Pray; alternate, Dr. S. A. Zimmerman; censors, Dr. C. E. Spicer, Dr. M. D. Westley, and Dr. A. C. MacDonald.

During the past year we have had six meetings, all dinner meetings. Two of these meetings were given to the discussion of the finances of the doctor as a class and to the prompt collection of fees for services rendered by the members of the Cheyenne Valley Medical Society.

These discussions resulted in the formation of a credit association, and through the secretary or manager, a non-medical man, a list was at all times available of those who were owing doctors of the Society and refusing to settle or who were otherwise thought to be unworthy of credit. This method was used as a protection against the chronic rounder and dead-beat.

Each doctor had a printed card for his office setting forth the fact of his membership in the Society, together with information that such settlement was expected on conclusion of services, thus giving the impression that the medical men considered their services of value and conveying the impression to the patient also that an obligation had been created by him which must be taken care of.

I have not been informed of any offense being taken by those worthy of credit, while, on the other hand, many of our men feel that the method has been productive of much benefit.

At the other four meetings clinics, papers, and case reports made up the usual program.

At one meeting an invitation was extended to the other medical men of the district, men of the allied professions, dentistry and pharmacy. This was a large meeting, and papers were presented on live subjects by men of these professions, as well as by members of our Society.

Topics of scientific interest presented and discussed at our meetings as follows: "A typical pneumonic conditions of a prevalent flu epidemic"; "Diabetes and insulin treatment," with clinics; "The later antiseptics (mercurochrome, gentian-violet and

others of like nature); "Focal infection"; "Imperforate anus with successful operation"; "Uterine fibroids and radium treatment thereof"; "Obstetrical monstrosities and abnormalities"; "Spina bifida"; "Intussusception in a baby of seven months with successful operation"; "Intestinal obstruction in a child, strangulation by band formation"; "Chronic vomiting in a small child proven to be from potato ingestion"; "Glioma of the retina, bilateral involvement, treated surgically and with radium."

It is a common belief with us of the Cheyenne Valley Medical Society that our meetings have been very much worth while and of much interest.

**Southern District**—Dr. L. B. Greene, Edgeley, presented the following report:

The Southern District has been, I am sorry to say, rather moribund the last year. Both our president and secretary have moved from the state; Dr. Blaine, the president, going to Long Beach, Calif., and Dr. Brinkle, the secretary, to South Dakota.

The work of the secretary has been taken over to such extent as possible by Dr. Ferguson. He has collected the dues from all men he could, and he can give you a better list of the membership than I can. We have had no meetings this year. We have called one or two, but there was no attendance. Our membership is scattered over four or five counties, and it seems difficult to get the men together. There is only a small nucleus of the old original Society at present in the state, and they are either too busy or do not seem to take enough interest in the Society meetings to get out. We have about sixteen paid up members at present.

**Grand Forks District**—Dr. G. M. Williamson, Grand Forks, presented the following report:

The Grand Forks District has had a good year. There is an active membership of 68, also three honorary members.

Meetings are held regularly each month except during July and August, with a good attendance at each meeting.

Programs during the past year have been of a practical nature. Many case reports have been given which invoked helpful discussions. Interesting clinical cases have also been brought before the Society. This form of program has stimulated our attendance. The spirit of good fellowship among the members is all that could be desired. We are very fortunate in this District in having a united and harmonious profession. The President of the State Association this year is a member of our District Society, and we had the pleasure of entertaining him as President of the State Association at a banquet early in the year. With him we entertained the three honorary members of our local Society, namely, Dr. R. M. Evans, Minto, the oldest active practitioner in the State; Dr. H. M. Wheeler, a past President of the State Association and for many years Secretary of the Board of Medical Examiners, who has retired from active practice; and Dr. J. D. Taylor, Grand Forks, a man who has always taken an active interest in the profession, but has been in failing health for the past few years. I wish it had been the privilege of all members of this Association to have heard these men tell about the practice of the early days. It is this type of men we have to thank for many of the privileges we as a profession enjoy to-day.

I wish to speak a word in behalf of a member of our Society, Dr. A. P. Flaten, Secretary of the Grand Forks District, who has been forced to give up practice on account of his health. If the reports to the State Association have not been as prompt or complete as they should have been I am sure you will pardon any delay or oversight.

**Cass County**—Dr. G. A. Larson, Fargo, presented the following report:

September 28, 1923. Dinner at Fargo Commercial Club. Business meeting.

October 30, 1923. Dinner at Commercial Club. Program: "Head Neuralgias," Dr. G. A. Larson; "Maxillary Sinusitis," Dr. Axel Oftedal.

December 21, 1923. Dinner at Commercial Club. Program: Report on Tri-State Medical Meeting at Des Moines, Iowa, Dr. P. H. Burton; Report on National Radiological Meeting at Rochester, Minn., Dr. T. P. Rothnem. The following officers were elected at this meeting: President, Dr. Kent Darrow; vice-president, Dr. J. J. Heimark; secretary-treasurer, Dr. G. A. Larson; State delegate, Dr. W. R. Skelsey (2 years).

January 25, 1924. Dinner at Commercial Club. Program: Symposium on Hyperthyroidism by Drs. Hagen, Lewis, and Clay.

February 28, 1924. Dinner at Commercial Club. Program: Lantern Demonstration of Peripheral Nerve Injuries, Dr. J. F. Corbett, Minneapolis.

March 26, 1924. Dinner at Commercial Club. Program: Symposium on Pneumonias, Drs. Morris, Watson, Limburg, and Nichols.

April 28 and 29, 1924. Special Pediatric Clinic, in which the Fargo Child Health Demonstration cooperated. The following visiting physicians participated in the program: Dr. F. L. Adair, Minneapolis, Minn.; Dr. H. Helmholtz, Rochester, Minn.; Dr. F. C. Rodda, Minneapolis, Minn.; and Dr. McKim Marriott, St. Louis, Mo.

The Society has 55 members and 7 associate members who are non-residents.

**Devils Lake District**—Dr. G. F. Drew, Devils Lake, presented the following report:

The condition of the Society has been about the same as in the past few years. We had four meetings fairly well attended by about the same members who have always taken an interest. We have lost four members during the year; one having moved to Minnesota; one to the Southwestern part of the state; one dropped membership as he intended moving to California; and one withdrew on account of a disagreement with another member over a case. Our Censors acted on the case and decided there was insufficient cause for action, so dismissed it.

There have been no deaths among the membership for the last twelve years.

It seems the number of doctors in this District has fallen from 46 in 1923 to 36 in 1924.

Upon motion, duly seconded and carried, the reports of the Councilors were accepted as read and ordered placed on file.

#### REPORTS OF COMMITTEES

The Secretary read the following letter from the attorney in charge of the medical defense work:

#### REPORT OF THE ATTORNEY

Minot, N. D., September 4, 1924.

Committee on Defense,  
North Dakota State Medical Association,  
Bismarck, North Dakota.  
Gentlemen:

Since my last report to you on May 10th, 1923, with reference to defense of malpractice cases handled by me for the North Dakota State Medical Association, I beg to advise that the cases now pending and undisposed of are as follows:

1. Melvin Anderson v. A. O. Arneson and A. Paulson brought in Nelson County in 1921. This case has not been tried, and we are informed that it will probably be dismissed.
2. Whitley v. Dr. H. L. Halvorson, of Des Lacs, N. D. This case has not been put on the calendar, and we do not believe it will ever be tried. We are hoping that the same will die a natural death.
3. J. E. Reed v. W. D. Wagar, of Petersburg. This case has not been put upon the calendar and we do not believe that it will ever be resurrected and tried.
4. Mabel Niel v. Z. P. King.

Since the last report we have disposed of the following case: Whorley v. Pence. A small settlement was made for less than it would cost to try the case.

The Stoskoff v. Wicklund has never been noticed for trial and probably never will be retried.

We doubt whether the case of Anderson v. Arneson, Whitley v. Halvorson or Reed v. Wager will ever be tried.

We are informed that the case of Mabel Niel v. Dr. Z. P. King will be tried at the coming term of the Federal Court when they have a jury. This case was tried at the last term of Court and although Dr. King did not appear and we had no witnesses we succeeded in getting a disagreement of the jury so that they got nowhere in the matter. I presume that it will be incumbent upon us to appear and retry the case at the expense of the Association, but I should like to have one thing settled in this matter and that is, Do you want me to appear and defend in the case even though Dr. King does not appear to defend it? I did that last time at his request because there was not time to get word to you, but in this instance there will be sufficient time to receive instructions from you in the matter, and, upon receiving instructions from you, I will advise him with reference thereto. Kindly have Dr. Rowe advise me specifically what to do in regard to the matter.

Respectfully submitted,

R. H. H. BOSARD

The Chair suggested that this letter be referred to the Committee on Medical Defense.

Dr. F. R. Smyth presented the following report:

#### COMMITTEE ON PUBLIC POLICY AND EDUCATION

Your Committee sent a circular letter to each member of the Association asking for suggestions on matters of public policy and legislation that might be considered by the Committee.



Following this a meeting was held at Devils Lake on August 27. At this meeting Dr. J. Grassick, President of the State Association, and the three appointed members of the committee were present.

A number of proposed bills and resolutions forwarded by the Legislative Committee of the American Medical Association were presented and considered by the committee. A resolution adopted by the House of Delegates expressing its disapproval of those portions of the National Prohibition Act which interfere with the proper relation between the physician and his patient in prescribing alcohol medicinally and recommending action to protect the sick against debased or poisonous liquors, was unanimously endorsed by your committee.

The same action was taken in regard to the efforts being made to procure the reduction of the war tax imposed under the Harrison Narcotic Law to its pre-war basis.

Bills relating to the proper labeling of lye and other caustic substances and a bill relating to cosmetics, hair dyes, etc., were recommended to be referred to the State Food Commissioner who has jurisdiction over the labeling of food and drugs.

It was agreed that no new legislation should be asked for in this State at this time, but that in view of the increased prevalence of smallpox in the State the State Health Department be urged to formulate practical rules for the control of cases and especially to urge the importance of vaccination as the only method of preventing this disease. To overcome the difficulty and occasional hardship of enforcing the vital statistics law in unorganized townships it was suggested that, as provided for in the Vital Statistics Law, school clerks could be appointed as Local Registrars in these townships.

It was moved that the report be adopted. Motion seconded and carried.

Dr. F. R. Smyth presented the following report of the Committee on Necrology:

#### REPORT OF THE COMMITTEE ON NECROLOGY

Since our last meeting the deaths of seven physicians practicing in our state have been reported. This gives a death rate of 14.7 per thousand per annum.

Dr. W. J. Awty, Fargo, died in September, 1923, at Charleston, Illinois, aged 61. Dr. Awty graduated from the Toronto School of Medicine in the class of 1891. At the time of his death he was a member of the Minnesota and North Dakota State Medical Associations and a Fellow of the American Medical Association. He was a constant attendant at, and took a prominent part in the proceedings of our meetings and was one of the best known physicians in the state.

Dr. F. H. Bailey, Fargo, died on July 29, 1924, in that city, aged 58. Dr. Bailey was born in Elmira, N. Y., and graduated from the University at Buffalo. He practiced for a short time in Pennsylvania, but moving to Fargo established a special practice in eye, ear, nose, and throat work and soon became known as one of the most skillful practitioners in the state.

Dr. H. Z. Fisher, Lansford, died June 17, 1924,

aged 69. Dr. Fisher practiced for several years in Bottineau County, but details regarding his graduation have not been received.

Dr. G. Goldseth, Jamestown, died February 15, 1924, at Rochester, Minn., aged 47. Dr. Goldseth was a graduate of a Chicago medical college and followed up his graduation by a special study in the University at Berlin. He made a specialty of diseases of the eye, ear, nose, and throat and established himself in practice in Jamestown, where he made an enviable record in his special work. The doctor was active in organization work in his profession. In addition to his membership in the local Society and State Association he was a Fellow of the American Medical Association.

Dr. L. S. Kron, Plaza, died July 28, 1924, at Minot. The doctor's name does not appear in the list of members of any of our local societies, and particulars regarding graduation are not known.

Dr. Samuel Mitchell, Mapleton, died June 15, 1923, aged 64. The doctor was an old-time practitioner in this state, having practiced at Mapleton for over forty years.

Dr. W. O. McFall, Parshall, is reported in the daily papers to have dropped dead at Parshall September 8, 1924. The doctor was 74 years of age and is said to have practiced medicine since 1876, having been at one time a surgeon in the United States Navy.

Dr. Sherman Rupperton, Wyndmere, died September 17, 1923, at Lidgerwood, aged 57. Dr. Rupperton was a graduate of the University of Iowa, class of 1905.

Dr. V. J. LaRose called attention to the fact that the death of Dr. Nutting was not reported.

It was moved that the report be accepted. Motion seconded and carried.

#### REPORT OF THE COMMITTEE ON TUBERCULOSIS

Dr. Fannie Dunn Quain, Bismarck, gave the following report in the absence of Dr. LaMont:

In the past score of years the reduction in the tuberculosis death rate has been somewhat more than 50 per cent in the registration area of the United States. While some of this reduction may be due to general causes, the greater part may be credited to improvement in general living conditions brought about as a result of intensive educative effort. The general result in the State of North Dakota has been sufficiently encouraging to warrant a continuation of the educative campaign.

The State Board of Health, as at present constituted, is the logical agency for the dissemination of knowledge and control of all preventable diseases. This agency in North Dakota has been in past years unfortunately handicapped through lack of means, organization, and equipment, and it is only within recent memory that a relatively earnest legislative effort has been made to develop the State Board to a proper fulfillment of its function. Inadequate health control was common in many states, and independent welfare agencies were organized to do something to help the emergency.

The North Dakota Tuberculosis Association has been one of these agencies since its organization,

in 1909. Working first independently and later under the jurisdiction of the State Health Department, it has been an exceedingly active factor in public health work, notably in educative effort. It publishes monthly four thousand copies of a bright little magazine called "*The Pennant*." It distributes annually about twenty thousand pieces of good health literature. It has given health demonstrations and lectures in all of the larger fairs and at other public gatherings. In the last year it conducted a sale of one and one-half million Christmas Seals, each one of which carries a message of health and hope. It has introduced into the schools the Modern Health Crusade movement, than which no more practical agency exists for the formation of proper health habits in children. Through the generous assistance of Miss Minnie Nielson, our State Superintendent of Public Instruction, the Modern Health Crusade work has been incorporated in the new course of study for the elementary schools of the state. The Association, through the travelling health clinic has made a practical attempt, by the employment of a doctor and a nurse, to carry ethical medical treatment and health education to out-of-the-way places. It has maintained an open-air school at the State Sanatorium, furnishing books, maps, charts, school-desks, and magazines, and paying the salary of a qualified teacher whenever a sufficient number of children were in residence at the Institution.

The North Dakota State Sanatorium has been gradually increasing its plan of development with the ultimate unit to be consummated of about 250 to 300 beds. Practically all of the central buildings of the group have been completed, namely: Administration Building; Refectory Building for food distribution; central power plant, the latter having been completed since the last meeting of our Association; excellent dairy barn with registered herd; and a sufficient number of cottages to accommodate the ambulatory type of patients. The power plant, recently completed, together with boiler installation and an underground tunnel for steam mains, has cost about \$50,000, which was allowed by the Legislature of 1923. There is under consideration at the present time an addition to the present Infirmary building and the erection of a Children's building. The earnest co-operation of each member of the medical profession is solicited to influence legislative action in these particulars towards a completion of the ends in view.

It is worthy of comment that the institution has been filled to capacity in the Infirmary section, while a goodly number of beds are usually vacant for ambulatory cases. It is urged that the profession use every means to induce patients to undertake proper treatment while the destruction of vital tissue is at a minor stage. The profession is to be congratulated upon increased facilities for the early diagnosis of pulmonary cases afforded by the Public Health Laboratory, the well-equipped hospitals, and increased efficiency in x-ray diagnosis available through the clinics and better-equipped offices used by the profession.

(Signed)

J. G. LAMONT, M.D., Chairman,  
FANNIE DUNN QUAIN, M.D.,  
V. H. STICKNEY, M.D.

It was moved that the report be accepted.  
Motion seconded and carried.

#### TREASURER'S ANNUAL REPORT

June 1, 1923, to September 5, 1924

##### Receipts

Balance general fund, June 1, 1923.....	\$ 911.61
By transfer from Savings account	
to Checking account.....	750.00
Savings account.....	760.15
Interest on savings account.....	44.37
Liberty bonds (2) deposited in	
James River National Bank.....	1,000.00
Interest on Liberty Bonds.....	42.50
Dues received from Dr. Rowe, Secretary .....	1,973.75

Total assets and receipts for year  
ending September 5, 1924..... \$5,482.38

##### Disbursements

Twenty-one (21) checks, Nos. 201 to 221 inclusive .....	2,669.83
Balance .....	\$2,812.55

##### Distribution of funds at present time:

General fund balance.....	\$ 965.53
Savings account to Sept. 5, 1924.....	847.02
Liberty bonds (2) in James River National Bank .....	1,000.00

Total Balance .....

\$2,812.55

Checks No. 120 in amount of seven dollars and ninety-eight cents (\$7.98) to Dr. Smyth, and No. 121 in amount of two hundred fifty-two dollars and eighty-five cents (\$252.85) to Dr. Rowe have not as yet been presented to the bank for payment.

Application in proper form was made to the receiver of the Carrington State Bank for the eighty dollars (\$80.00) lost through the bank closing in 1923.

Two checks were sent back from Williston for total of fifteen dollars (\$15.00), on account of bank closed. The secretary was promptly notified.

Audited, corrected, and approved as corrected.

F. R. SMYTH,  
President of Council.

The report of Treasurer together with the Secretary's report was referred to the Council.

The report of the Delegate to the A. M. A. was made by Dr. A. J. McCannel, Minot, as follows:

#### REPORT OF DELEGATE TO THE A. M. A.

The 1924 meeting of the American Medical Association, held at Chicago, June 9-13, was perhaps the best ever held, both in size and interest. The total registration was 7,819. Naturally, Illinois had the largest registration of any state, her number being 3,224. There were 15 registered from North Dakota.

The committee on arrangements is to be congratulated on arranging to have the entire meeting held on the Municipal Pier which made an ideal meeting place for a gathering of this size. It was a relief not to have to travel all around the city to find the registration booth and the meeting places of the different Sections.



The scientific and commercial exhibits were very large and interesting, and, being also held on the Pier, were convenient to the Section meetings and for that reason more largely visited.

A feature of unusual interest was the moving picture theatre in which were shown pictures, charts, and films accompanied by talks that were not only interesting but highly instructive.

Even the weather man was kind, and the cool weather added much to the comfort and enjoyment of the meeting.

The opening general meeting of the Association was held in the Auditorium Theatre, with an attendance of about 3,000. The president's address was well received and was broadcasted by radio as well as receiving wide publicity from the press.

I shall not attempt to give any fuller report of the general session or the meetings of the Sections, as they were so completely reported in the *Journal*, but shall try to review, briefly, the work of the House of Delegates in which I had the honor of being your representative.

The House of Delegates was called to order by the speaker, Dr. F. C. Warnshuis, at 10 A. M., June 9, and the reports of officers and committees were received. These reports are printed with the proceedings in the issues of *The Journal of the American Medical Association* for June 14 and 21 and are well worth the attention of anyone who has not already read them.

The President-Elect, Dr. William Allen Pusey, in his annual address, recommended shorter courses of training for nurses and also a shorter course of training for medical students. For medical students he recommended:

1. The present accredited high school education.
2. Three years of medical training.
3. A hospital internship of not less than one year and a half.
4. Proper selection of students on the ground of fitness.

The Secretary's report showed a membership in the Association on April 1, 1924, of 90,056, an increase of 1,537 over last year. The number of Fellows was 54,063, an increase over last year of 619.

The report of the Board of Trustees showed a gain of 1,400 in the subscription to the *Journal*. In this connection it is interesting to note that North Dakota stands first in the percentage of physicians taking the *Journal*, our percentage being 71. Connecticut is second with 70 per cent, and then come Illinois, Minnesota, Utah, and Wisconsin with 65 per cent.

Their report also showed a healthy growth in the assets of the Association and the affairs of the Association to be in a very satisfactory condition at the present time.

The Board of Trustees announced that following the retirement of Dr. Simmons as editor and general manager, Dr. Olin West will become Acting General manager; Dr. Morris Fishbein, Acting Editor of the *Journal*; and Mr. Will C. Braun Acting Business Manager—all to serve until the next annual meeting of the Board on the first Friday of February, 1925.

The Committee on Reapportionment of Delegates recommended that each state have one delegate for every 950 members, or fraction thereof, in the State

Association. This gives California and Minnesota each one more delegate, while Illinois, Pennsylvania, Tennessee, Texas, and Virginia will each lose one.

An amendment to the By-Laws was adopted providing that hereafter trustees shall be elected for a five-year term, and that no trustee shall be eligible to hold more than two consecutive terms.

After a general discussion of the Life Extension Institute and similar concerns the following resolution was adopted:

RESOLVED that the Committee of the Whole recommends to the House of Delegates that the practice outlined in the supplementary report of the Judicial Council be condemned as against the best interests of the public; and be it further

RESOLVED that the Judicial Council be instructed to carry on an educational campaign in conjunction with the constituent State Associations and to cooperate with other Councils and Bureaus of the American Medical Association in the promotion of periodic health examinations by family physicians.

At the election of Officers Dr. William D. Haggard, Nashville, Tenn., was made President-Elect; Dr. E. B. McDaniel, Portland, Oreg., vice-president; Dr. Olin West, Chicago, secretary; Dr. Austin A. Hayden, Chicago, treasurer; Dr. Fred C. Warnshuis, Grand Rapids, Michigan, speaker; Dr. Rock Sleyster, Wauwatosa, Wis., vice-speaker. Dr. J. H. Walsh, Chicago, Dr. E. B. Heckel, Pittsburg, and Dr. Thomas McDavitt, St. Paul, were elected trustees.

The place of meeting of the 1925 session was left to the selection of the Board of Trustees, Atlanta, Atlantic City, and St. Paul having sent invitations for the next meeting.

Dr. Rowe asked what disposition was made of the recommendations of Dr. Pusey.

Dr. McCannel said they were referred to the Committee on Hospital and Medical Education for action and will come up again next year.

It was moved the report be accepted. Motion seconded and carried.

On motion the meeting adjourned subject to the call of the President.

## SECOND SESSION—THURSDAY SEPTEMBER 11, 1924

The second session of the House of Delegates of the thirty-seventh annual meeting of the North Dakota State Medical Association was called to order in the Masonic Temple, Bismarck, at 12:05 P. M., Thursday, September 11, 1924, by the President, Dr. James Grassick, Grand Forks.

The Secretary called the roll, and the President announced that a quorum was present and the house duly constituted for the transaction of business.

The minutes of the previous meeting were read and approved.

### ELECTION OF OFFICERS

The next order of business was the election of officers. The Nominating Committee, consisting

of Drs. G. M. Williamson, Chairman, L. B. Greene, and H. A. Brandes, presented the following recommendations:

President—Dr. W. C. Fawcett.....Starkweather  
 President-elect—Dr. John H. Rindlaub.....Fargo  
 1st Vice-Pres.—Dr. N. O. Ramstad.....Bismarck  
 2nd Vice-Pres.—Dr. Thos. Mulligan.....Grand Forks  
 Secretary—Dr. A. J. McCannel.....Minot  
 Treasurer—Dr. W. W. Wood.....Jamestown  
 Board of Medical Examiners—  
   Dr. W. H. Sihler.....Devils Lake  
   Dr. T. L. DePuy.....Jamestown  
   Dr. V. J. LaRose.....Bismarck  
 Delegate to the American Medical Association—  
   Dr. E. A. Pray.....Valley City  
 Alternate to the American Medical Association—  
   Dr. J. W. Bowen.....Dickinson  
 Official Reporter—  
   Mrs. Irene H. Snyder.....Chicago, Ill.  
 Councilors: N. W. District and Kotana—  
   Dr. E. M. Ramson.....Minot  
 Cheyenne Valley—  
   Dr. F. M. Wicks.....Valley City  
 Stutsman County—  
   Dr. G. P. Artz.....Jamestown  
 Trail-Steele County—  
   Dr. O. A. Knutson, Buxton, to complete term  
   of Dr. T. P. Martin.  
 Tri-County—  
   Dr. Chas. MacLachlan.....New Rockford

In submitting the report the Chairman stated that for the first time in many years the name of Dr. Rowe was omitted from the report. He has acted as secretary for many years very efficiently and the Association owes him a debt of gratitude for the work he has done. He is moving to another state and hence is not eligible for office.

It was moved that the report be accepted. Motion seconded and carried.

It was moved that the rules be suspended, and that Dr. Greene be instructed to cast the ballot for the officers named. Motion seconded and carried. Dr. Greene stated the ballot cast, and the Chair declared the officers elected.

The next order of business was fixing the per capita tax for the ensuing year. Dr. Williamson moved that no change be made in the per capita tax. Motion seconded and carried.

The next order of business was the selection of a meeting place for next year. Dr. MacLachlan suggested Devils Lake. Dr. Barton presented an invitation from Fargo.

It was moved that the invitation from Fargo be accepted. Motion seconded and carried.

Dr. MacLachlan moved that the 1925 meeting be held either in the last days of May or the first part of June, according to the option of the local men. Motion seconded by Dr. Williamson and carried.

Under unfinished business Dr. H. E. French, University, gave the following report from the Committee appointed to consider the President's address:

#### REPORT OF THE COMMITTEE ON THE PRESIDENT'S ADDRESS

Your Committee appointed September 9, 1924, to consider the President's address desires to express its appreciation of the splendid presentation, and would recommend as follows:

That the address be made a part of the permanent proceedings of the Society and be published through the usual channels:

That in conformity with the President's recommendation local societies appoint committees on public information;

That the newly elected President appoint a committee of three members from the Grand Forks District Medical Society to devise ways and means for the publication and sale of the History of Medicine in North Dakota prepared by Dr. Grassick and that the Secretaries of all component societies be requested to co-operate with this committee.

It was moved that the report be accepted. Motion seconded and carried.

#### REPORT OF THE COMMITTEE ON MEDICAL DEFENSE

Dr. E. A. Pray, Valley City, reported that the Committee had decided that inasmuch as Dr. King did not take enough interest in his own case to appear at the trial, Mr. Bosard be instructed not to defend the case.

It was moved that the report be accepted. Motion seconded and carried.

Dr. Charles MacLachlan, New Rockford, made the following report:

#### REPORT OF THE COMMITTEE ON RESOLUTIONS

Your Committee on Resolutions offers the following for your consideration:

To the local committees of the Sixth District Medical Society the sincere thanks of the entire membership of our body are due for the successful management of this the thirty-seventh annual meeting at Bismarck, and especially do we commend the efforts of the Committee on Scientific Program for the well-balanced program presented.

The Committees on Reception, on Registration and Badges, and on Banquet and Entertainment missed no opportunity in the extension of courtesies by way of making the visiting members' stay enjoyable; in fact, all of the committees performed their duties most happily.

To our visitors we wish to express the thanks of the Association for their presence and for the important part of the program sustained by them.

A distinguishing feature of the meeting was the appearance of Governor Nestos at the opening session, who delivered the address of welcome.

To the ladies who so charmingly entertained the visiting ladies we extend our gracious thanks.



To the local press we express our hearty appreciation for their complete report of the meeting.

Respectfully submitted,

CHARLES MACLACHLAN, M.D., Chairman,  
H. G. WOUTAT, M.D.  
P. A. NESTOS, M.D., Secretary.

It was moved that the report be accepted. Motion seconded and carried.

Dr. H. E. French, University, gave the following report:

#### REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

The School of Medicine at the University has continued its work on the plan that is well known to you and continues to enjoy the confidence of various rating bodies and other medical schools. The attendance last year was thirty-seven. All members of the second year class have transferred to clinical schools to good advantage. The attendance for the coming year will probably be forty-five. At least twenty-four applications have been rejected to date; partly because of lack of facilities and partly because some applicants were not the most desirable.

Dr. French, of the Committee, attended the Association of American Medical Colleges in Omaha in February, and the Annual Congress on Medical Education, Public Health, and Hospitals, in Chicago in March.

Aware of the necessity of a certain amount of popular medical education and with the subject under advisement, the Committee is not yet ready to report a definite plan.

It was moved that the report be accepted. Motion seconded and carried.

Dr. F. M. Smyth, Bismarck, reported that the Treasurer's report had been examined by the Council and found correct.

It was moved that the report of the Treasurer be accepted and placed on file. Motion seconded and carried.

Dr. G. M. Williamson, Grand Forks, moved that the usual amount of \$150.00 be paid to the local society for entertaining the State Association. Motion seconded and carried.

Dr. E. A. Pray presented the report of the delegate to the San Francisco meeting of the American Medical Association and suggested that the reading of the report be dispensed with, but that it be published in the transactions. The report is as follows:

#### REPORT OF THE DELEGATE OF THE A. M. A. MEETING AT SAN FRANCISCO

Your delegate to the San Francisco meeting of the American Medical Association held June 25 to 29, 1923, was greatly impressed with the splendid way in which this beautiful city was able to entertain so large a body of men under one roof as was done in the magnificent Civic Auditorium. Ten thousand could as well be handled as five thousand with committee rooms in abundance at hand.

The Delegates were quartered at the Palace Hotel, a delightful place to stay. I heartily approve the action of the House in requiring reservations of Delegates together in one hotel. This has been objected to by a large number of members individually because about 130 rooms are occupied preventing brotherly bands of medical men getting rooms at one place.

The death of Dr. Alexander R. Craig, so long Secretary, was properly mourned by proper resolutions and an adjournment in memory.

Dr. Craig was well fitted for the position he held and with this I pay recognition to the ability of the new Secretary, Dr. Olin West, who has a personality that makes you feel you have met your long lost brother.

The Speaker, Dr. Warnshuis, is a wizard as Chairman of the House, and has a fine memory and an abundance of tact.

He strongly recommended semi-annual sessions of the House of Delegates. The Reference Committee did not approve. I believe it not advisable from the cost of such a meeting, although I consider it might have much in its favor, especially that more time would be given to extended consideration of important subject matter.

The address of the President, Dr. DeSchweinitz, was well taken. He recognized that he was a figure-head—that the affairs were conducted by regular and efficient permanent boards and committees and that his office was largely advisory.

His paper applied largely to the subject of medical education.

The President-Elect, Dr. Ray Lyman Wilbur, addressed the House and strongly advocated a board of strategy to prepare the country for the practice of medicine five, ten, or fifteen years from now.

I recognize the ability of Dr. Simmons who had the vision and the ability to superintend the organization of so large an Association as the American Medical Association has become. His resignation may have the promise of allying some opposing interests, but on the whole it may be some time before a better head can be secured for his place. His failing health and his age are the reasons for resigning.

Your Delegate was unfortunate enough to be on the Credentials Committee which required all of two days and one-half of the third day in an adjoining room so that a great part of the deliberations were missed. The details of that part have been published.

Dr. J. M. Bowen asked to have read the portion of last year's minutes condemning the Abrams treatment.

The Secretary read the following resolution adopted at the 1923 meeting:

"BE IT RESOLVED that it is the opinion of the North Dakota State Medical Society that the so-called Abrams' treatment is unscientific, unethical, irrational, and without merit, and be it further

RESOLVED that any member of this organization practicing the same after one month's official notice, shall be expelled from the Association."

Dr. Smyth moved that the second clause of this

Resolution be rescinded. Dr. Smyth stated that the Association had no power to expel a man without proving charges against him. Motion seconded.

Dr. McCannel said that as the matter now stands the local society, the county or district society, is a judge of the membership and any one who is in good standing in the local or county society is entitled to membership here. Any action taken to expel a member has to be done through the local society. He was thoroughly in accord with the resolution passed last year, but suggested that the resolution be amplified so as to read "That we recommend to the local society that they take action disciplining any member practicing the same."

Dr. Wood asked if that could not be made to read that the Secretary take action. Dr. F. L. Wicks said that this matter was discussed on the floor of his local society. The information they gained was that the resolution was more or less unconstitutional. He said he was glad that if the resolution was unconstitutional to have this information. The motion made by Dr. Smyth to rescind the second clause of the resolution was carried.

Dr. Williamson moved that the recommendation made by Dr. McCannel be adopted. Motion seconded.

On motion the House of Delegates adjourned at 12:45 P. M.

## PROCEEDINGS OF THE SCIENTIFIC MEETINGS OF THE ASSOCIATION

### FIRST SESSION—WEDNESDAY, SEPTEMBER 10

The first session of the thirty-seventh annual meeting of the North Dakota State Medical Association was called to order in the Masonic Temple, Bismarck, Wednesday, September 10, 1924, at 9:00 A. M., by the President, Dr. James Grassick, Grand Forks.

### OPENING ADDRESS OF THE PRESIDENT, DR. JAMES GRASSICK

When I first came to North Dakota, or rather the territory of Dakota, I settled in a little town. It was just after the coming in of the Great Northern Railroad. It was the custom of the people of the little town in which I settled to turn out every day to see the train come in. That was the event of the day. On one occasion I dropped over along with the other citizens from Main Street and from the train there stepped a newcomer, a lad with a bundle in his hand. He was greeted by his uncle. After the usual salutations the uncle turned to me and said, "This is a nephew of mine from Norway." I told him that if he were of the same stuff that his

uncle was made of, he was just the material that we needed in North Dakota. I then extended my hand in welcome and told him this was the land of opportunity. You see that this same individual has demonstrated over and over again that this North Dakota is not only the land of opportunity, but of achievement and service. He has kindly consented to offer us sojourners in this beautiful city a word of welcome. I have much pleasure in introducing to you Governor R. A. Nestos.

### ADDRESS OF WELCOME BY HON. R. A. NESTOS, GOVERNOR OF NORTH DAKOTA

It is a pleasant privilege indeed to come here to bid you welcome at your annual meeting in the capital city. I feel the citizenship of our State is appreciating in an increasing degree the development of your services in the life of the State and in promoting the health and happiness of its citizenship. There was a time when we used to think that all a Doctor was interested in was that as many as possible of the people in his community would get sick so he would have a chance to cure them and make a lot of money and spend a good deal of it in our cities or in foreign lands. That is no longer the conception of the medical profession. The physician is interested in the welfare of the State and in that of the community. Great development in medical science and in the healing of diseases has come in recent years so that we feel to-day that the members of the medical profession, more than of any other profession and more than any other class of citizens, are interested in better sanitation, in better living conditions and in the progress of public health in every community of the land. They are seeking now to prevent diseases rather than to merely cure the diseases that flesh is heir to, and because of that I feel that the citizenship of this State ought to be at all times willing and glad to welcome the annual meeting of the medical profession, no matter in what portion of the state it is held. I want to assure you that as far as the City of Bismarck, as far as the State Capital are concerned, we are glad to welcome you, and we rejoice in the fact that you are laboring amongst us to reduce diseases and that you are doing so much to make for better citizenship, physically, mentally, and morally and that you are doing what you can to make better citizens in North Dakota. I know by that service the citizenship is going to be a better one with nobler ideas than in the past. I sincerely hope that in your labors for better conditions for public health and for individual health your efforts may be crowned with success and that the rewards you are to receive financially and otherwise will be in proportion to your ability to forget selfish interests in the service of the great cause in which you believe. I take pleasure in welcoming you to the Capital City.

### RESPONSE BY DR. F. R. SMYTH, BISMARCK

Honorable Governor, Mr. President and Members of the Association:

I was inviting a friend of mine to come to this meeting to hear the Governor's remarks. He is rather a singular character, and when I showed him the program, he said, "Are there any Americans in



the State Medical Association?" We are trying to do all that is possible to show what the melting pot can do for some of the poor emigrants who come to this grand country. The reception the Governor has given us, I am sure, is appreciated by all of us. It is very proper to have the Governor of our State present at our meetings. There is a close connection between the State Government and the State Medical Association. At the meeting of the American Medical Association in San Francisco, in 1923, a resolution was passed for the first time in the history of such an association commending a Governor for his activities in consulting the medical association in the interest of public health and education, medical education, and the practice of medicine. At the same time the resolution was cited it was said that it was hoped that the example of that Governor would be followed throughout the United States. That was the Governor of the State of New York, and the result of his taking that active part is well known to those who make a study of public health work. New York State is one of the foremost States in the Union in public health work. It has lowered the death rate in this country. There is no State in the civilized world with a population anywhere over five million that has as low a death rate as New York.

We are glad to have the Governor with us to-day because that resolution stated that the Governor of the State should take an active part in public health work. One of the greatest statesmen in recent history has stated that public health is the foundation on which the happiness of the people and the power of the country are based. There was never anything truer said. Without the protection of public health a nation cannot be powerful or the people happy. I think it is proper to have the Governor with us to-day so near to what has been named as Defense Day. We are all rejoicing that the Governor has taken the stand that Defense Day should be honored. Defense is not provocative of war; it is a preventive of war. Especially in the medical profession we know the benefits of protection and organization have never been better illustrated than in the last war. With all the terrible means of destruction, with all the terrible plagues that raged during a great part of the period the health of the men in the army, due to the efforts of the doctors in preventing diseases, was better than ever before. Never such a record was made in the world's history as was made in the American army during The World War, so much so that in our state the men in service during the war were safer in health during the war than they would be at home.

We feel, indeed, flattered at the reception the Governor has given us, whether we deserve it or not. We all have to judge for ourselves, but I can assure our Governor in behalf of this Association that all the knowledge we have in public health work and in the treatment of diseases is at his service.

It is our duty to co-operate with him at all times, and we will ask him to require us to aid him in every way in protecting the health of the people for the benefit of the people without considering the effects on the profession. This is no longer an altruistic profession, and it is necessary that it should not be with the changes that have come. A recent writer, a member of our profession, says this, "Not

persons, but enlightened physicians are needed in the prevention of diseases, even though they do injure the practice of medicine." I think we all feel the same way.

I endorse what the Governor has said about our duty to the public. We thank the Governor, and as this is the first time in the history of our organization, which is over thirty years old, that the Governor of the State has honored us with his presence and advice and offered his assistance, I would like to move, Mr. President, that we show our appreciation and our willingness to help the Governor by a standing vote.

Dr. Smyth's motion seconded and unanimously carried by a rising vote.

Dr. W. C. Fawcett, the President Elect, took the Chair while the President read his address.

Dr. Fawcett then appointed a Committee consisting of Drs. H. E. French, University, Chairman; E. A. Pray, Valley City; and N. O. Ramstad, Bismarck, to consider the President's address.

Dr. G. M. Williamson stated that the Association was fortunate in having Dr. Grassick present this manuscript of the History of Medicine in North Dakota. A few years ago Dr. Grassick was asked to do this work, and has spent weeks and months of hard labor in order to compile this manuscript. We are sure the profession of this state will be forever indebted to Dr. Grassick for the work he has done.

Dr. Williamson moved that the State accept this manuscript from Dr. Grassick and that the thanks of the Association be tendered him for the work he has done in compiling it and that a committee be appointed to arrange for this publication so as to get it in the hands of the profession some time in the near future.

Motion seconded and carried by a rising vote.

Dr. Fawcett said that the committee appointed to go over the address would go over the manuscript.

Dr. Grassick then took the chair and appointed the nominating Committee, consisting of Drs. G. M. Williamson, L. B. Greene, and H. A. Brandes.

Dr. T. Mulligan, Grand Forks, read a paper entitled "Some Rather Prevalent Errors in the Diagnosis of Appendicitis."

Dr. Theodor Bratrud, Warren, Minn., read a paper entitled "Acute Appendicitis."

These papers were discussed by Dr. H. E. Landes, Kenmare; Dr. Paul Burton, Fargo; Dr. H. E. French, University; Dr. T. Mulligan, Grand Forks; Dr. E. P. Quain, Bismarck; Dr. Wallsmith, Bismarck; Dr. W. A. Jones, Minneapolis; Dr. J. E. Engstad, Grand Forks; Dr. G. M. Williamson, Grand Forks; Dr. G. A. Larson,

Fargo; and Dr. Theodor Bratrud, Warren, Minn.

Dr. C. N. Callander, Fargo, read a paper entitled "The Industrial Triad: Carrier, Employer and Employee."

R. E. Wenzel, Commissioner of Workmen's Bureau, Bismarck, read a paper entitled "The Relation of the Physician to the Administration of the Workman's Compensation Law."

These two papers were discussed by Dr. W. H. Bodenstat, Bismarck; Dr. C. N. Callander, Fargo; and Mr. R. E. Wenzel, Bismarck.

As this concluded the program for the morning session, on motion duly seconded, the Association adjourned at 12:30 P. M., to reconvene at 1:30 P. M.

#### AFTERNOON SESSION

The second session of the North Dakota State Medical Association was called to order in the Masonic Temple, Bismarck, Wednesday, September 10, at 2:00 P. M., by the President, Dr. James Grassick, Grand Forks.

Dr. Walter R. Ramsey, St. Paul, Minn., gave a clinical demonstration on "Breast Feeding and the Common Forms of Malnutrition of Infants and Young Children."

Dr. F. E. Clough, Lead, South Dakota, gave a clinical demonstration on "Fractures of the Long Bones, Lessons Learned from Handling Five Thousand Cases," with lantern slide demonstration.

Dr. W. A. Jones, Minneapolis, gave a clinical demonstration on some "Neurological Cases."

On motion duly made and seconded, the meeting adjourned about 5:30 P. M.

#### EVENING SESSION

At 7:00 P. M., a banquet was given at McKenzie Hotel. Mr. C. L. Young, Attorney at Law, Bismarck, was the speaker of the evening. The subject of his address was "Some of the Medico-Legal Phases of the Practice of Medicine."

#### FOURTH SESSION—THURSDAY, SEPTEMBER 11

The morning session of the second day of the meeting of the North Dakota State Medical Association was called to order in the Masonic Temple, Bismarck, on Thursday, September 11, 1924, at 9:05 A. M., by the President, Dr. James Grassick, Grand Forks.

Dr. C. J. Glaspel, Grafton, read a paper entitled "Treatment of Fractures of the Femur by Means of Skeletal Traction," with lantern slide demonstration.

Dr. E. L. Tuohy, Duluth, Minn., read a paper entitled "Some of the Simpler Functional Tests

Concerned in the Diagnosis of Chronic Kidney Conditions, with Particular Emphasis upon Chronic Glomerulonephritis and the Chronic Nephroses," with lantern slide demonstration. This paper discussed by Dr. J. O. Arnson, Bismarck, and Dr. R. W. Henderson, Bismarck.

Dr. E. Starr Judd, Rochester, Minn., read a paper entitled "Infactions of the Gall-Bladder and Bile Ducts," with lantern slide illustrations. The paper was discussed by Dr. J. W. Bowen, Dickinson; Dr. R. E. Weible, Fargo; Dr. H. M. Ehrenfelt, Minot; and Dr. E. Starr Judd, Rochester, Minn.

Dr. R. L. Murdy, Aberdeen, S. D., read a paper entitled "Common Obstetric Injuries; Their Remote Effect and Suggestions as to Treatment." The paper was discussed by Dr. W. C. Wolverton, Linton; and Dr. E. A. Pray, Valley City.

This completed the morning session, and on motion duly seconded, the meeting adjourned at 12:00 noon to reconvene at 1:30 P. M.

#### AFTERNOON SESSION—SEPTEMBER 11

The afternoon session of the second day was called to order in the Masonic Temple, Bismarck, Thursday, September 11, at 2:00 P. M., by the President, Dr. James Grassick, Grand Forks.

The Secretary announced the names of the newly elected officers, and the President made the following remarks:

Before introducing to you our newly elected president, I wish to express my thanks for the honor of being elected as your president and for the privilege afforded me of presiding over the thirty-seventh annual meeting of our Association. I am deeply grateful for the many kindnesses that have been shown me and for the fine spirit of fellowship and co-operation that has been so much in evidence. I wish especially to thank the members of the several committees for their activities and for the splendid way they responded to the call of duty.

To the officers and members of the Sixth District Medical Society I have only words of praise. On them fell the brunt of the work and to them should be given the credit for program arrangements and entertainment. It has, indeed, been a great pleasure to preside over such a gathering where everything has moved with precision, without hitch or jar. I am sure that during the coming year under the guiding hand of our newly elected president the Association will take on newness of life and become an increasing power for good in state and nation.

I now take great pleasure in introducing to you Dr. W. C. Fawcett, of Starkweather, your new president.

Dr. Fawcett then responded as follows:

Mr. Retiring President and Members of the North Dakota State Medical Association: This is a great honor, and I assure you that I appreciate it in no



small way. I trust, too, that I shall prove myself worthy of the high office you have given me this day.

In looking over the names of the presidents of our Association since 1887, I find that I am the first man to be elected to the presidency from so small a town as Starkweather. All former presidents have come from the cities of our state.

Dr. Grassick in his annual address told us about the passing of the family physician and that means, too, the country doctor. Now by your actions today in electing me president I would take it to mean a coming back of the family doctor, and I trust I shall be able to re-establish a confidence in the doctors of the small towns, as well as in the rural districts.

I hope, too, that this will be a great year for the North Dakota Medical Association, and that next year we shall go to Fargo with better reports of all county and district societies and that will mean a better State Association. We have over 500 men in the state and we ought to have at least 250 at the next annual meeting. I hope that every Coun-

cilor will be able to report, first, more members; second, better attended meetings; and, third, more enthusiasm among the doctors.

Dr. Grassick has made a good presiding officer and I am going to ask him to remain in charge for the remainder of the session and I will try and do my duty next year. Dr. Grassick will you take the chair?

Dr. E. L. Tuohy, Duluth, Minn., gave a clinical demonstration on "Cardiac and Nephritic Cases."

Dr. E. S. Judd, Rochester, Minn., gave a clinical demonstration on "Affections of the Urinary Tract."

Dr. S. E. Sweitzer, Minneapolis, Minn., gave a lantern slide demonstration on "Skin Disease and Syphilis."

At the close of the scientific program the Secretary read the report of the Resolutions Committee and the meeting adjourned on motion at 4:45 P. M.

## DISTRICT AND COUNTY ROSTER

### CASS COUNTY MEDICAL SOCIETY

PRESIDENT	
Darrow, Kent	Fargo
SECRETARY	
Larson, G. A.	Fargo
Aylen, J. P.	Fargo
Baillie, W. F.	Fargo
Bakke, Hans	Lisbon
Bayard, W. D.	Fargo
Brown, W. G.	Fargo
Burton, Paul H.	Fargo
Callander, C. N.	Fargo
Carpenter, Geo. A.	Fargo
Clay, A. J.	Fargo
Darrow, F. I.	Fargo
Darrow, Kent E.	Fargo
Dillon, J. G.	Fargo
Evans, L. J.	Fargo
Fortin, H. J.	Fargo
Gowenlock, H. J.	Gardner
Gronvold, F. O.	Fargo

Gustuson, E. V.	Fargo
Hanna J. F.	Fargo
Heimark, J. J.	Fargo
Hendrickson, Gilbert	Enderlin
Hotchkiss, W. M.	Fargo
Hougen, Hans	Fargo
Huntley, H. B.	Leonard
James, J. B.	Page
Joistad, A. H.	Fargo
Kaess, A. J.	Fargo
Kilbourne, B. K.	Fargo
Larson, G. A.	Fargo
Lewis, T. H.	Fargo
Limberg, A. M.	Fargo
MacGregor, Murdock	Fargo
Meyers, L. W.	Fargo
Miller, H. W.	Casselton
Morris, A. C.	Fargo
Nelson, W. P.	Powers Lake
Nichols, A. A.	Fargo

Nichols, Wm. C.	Fargo
Oftedal, Arne	Fargo
Oftedal, Axel	Fargo
Oftedal, Sverre	Fargo
Platou, L. S.	Fargo
Richter, E. H.	Hunter
Rindlaub, Elizabeth P.	Fargo
Rindlaub, J. H.	Fargo
Rindlaub, M. P.	Fargo
Rothnem, T. P.	Fargo
Rowe, H. J.	Minneapolis
Sand, Olaf	Fargo
Skelsey, A. W.	Fargo
Taintor, Rolfe	Fargo
Tronnes, N	Fargo
Wadel, K. A.	Fargo
Wands, E. E.	Lisbon
Watson, E. M.	Fargo
Weible, R. E.	Fargo
Weyrens, P. J.	Sheldon

### DEVILS LAKE DISTRICT MEDICAL SOCIETY

PRESIDENT	
Vigeland, J. G.	Brinsmade
SECRETARY	
Drew, G. F.	Devils Lake
Arneson, O. A.	McVille
Call, A. M.	Rugby
Carter, J. A.	Warwick
Drew, G. F.	Devils Lake
Emmert, H. F.	Sarles

Engesather, A. D.	Brockett
Fawcett, W. C.	Starkweather
Floew, A. T.	Harvey
Hayhurst, J. O.	Rolette
Horsman, A. T.	Devils Lake
Jones, W. D.	Devils Lake
Lamont, J. G.	Dunseith
Lees, H. D.	Esmond
Litman, M. H.	Tolna
McGurren, C. J.	Devils Lake

McIntosh, G. J.	Devils Lake
Nicholson, E. G.	Lawton
Roberts, F. J.	Cando
Sihler, W. F.	Devils Lake
Smith, Clinton	Devils Lake
Sorrenson, A. R.	Rugby
Swanson, A. W.	Bisbee
Verrett, B. D.	Rolla
Vigeland, J. G.	Brinsmade
Widmeyer, J. P.	Rolla

### SOUTHWESTERN DISTRICT MEDICAL SOCIETY

PRESIDENT	
Schneider, J. E.	Bowman
SECRETARY	
Dach, J. L.	Reeder

Dach, J. L.	Reeder
Hill, S. W.	Regent
Lemiux, S.	Bowman
Maercklein, O. C.	Mott

Schneider, J. E.	Bowman
Schumacker, N. W.	Hettinger
Voss, Carl	Hettinger

## GRAND FORKS DISTRICT MEDICAL SOCIETY

## PRESIDENT

Witherstine, W. H. Grand Forks

## SECRETARY

Flaten, A. P. Grand Forks

Allaire, J. Lehr  
 Arneberg, J. G. Grand Forks  
 Backus, A. S. St. Paul  
 Beek, R. H. Lakota  
 Beeson, H. B. Grand Forks  
 Bennett, C. E. Aneta  
 Bennwell, H. Grand Forks  
 Boutelle, L. Bismarck  
 Campbell, Robt. D. Grand Forks  
 Countryman, J. E. Grafton  
 Dean, A. C. San Diego, Calif.  
 Dixon, O. C. Adams  
 Eggers, Aug. Grand Forks  
 Engstad, J. E. Grand Forks  
 Evans, R. M. Minto  
 Field, A. B. Forest River  
 Flaten, A. P. Grand Forks  
 Fortun, O. J. Grand Forks  
 French, H. E. Grand Forks  
 Gislason, G. J. Grand Forks

Glaspel, C. J. Grafton  
 Glaspel, G. W. Grafton  
 Grassick, Jas. Grand Forks  
 Haagenon, E. C. Grand Forks  
 Halldorson, M. B. Winnipeg  
 Hamilton, J. S. Bathgate  
 Harris, C. B. Pembina  
 Healy, H. H. Grand Forks  
 Hetherington, J. E. Grand Forks  
 Irvine, V. S. Park River  
 Jelstrup, Christian Petersburg  
 Landry, L. H. Walhalla  
 Law, H. W. F. Grand Forks  
 Link, J. J. McVile  
 Lommen, C. B. Fordville  
 Mahon, Ruth Grand Forks  
 Mayers, L. Grand Forks  
 McLean, R. N. Gilby  
 McQueen, W. W. Langdon  
 Miller, J. P. Grand Forks  
 Moore, J. H. Grand Forks  
 Mulder, J. L. Cavalier  
 Mulligan, T. Grand Forks  
 O'Keefe, Henry Grand Forks

Panek, A. F. Milton  
 Peake, F. Margaret Grand F'ks  
 Porter, W. H. Calvin  
 Peterson, O. T. Minot  
 Ruud, M. B. Grand Forks  
 Rystad, O. H. Grand Forks  
 Scott, R. A. Crystal  
 Smith, Geo. Grafton  
 Smith, J. C. Thompson  
 Spanare, C. I. Inkster  
 Stromberg, G. E. Langdon  
 Suter, J. C. Grafton  
 Taylor, J. D. Grand Forks  
 Thompson, A. Y. Larimore  
 Wagar, W. D. Michigan  
 Waldren, H. M. Drayton  
 Weed, F. E. Park River  
 Welch, W. H. Larimore  
 Westeen, A. A. Grand Forks  
 Williamson, G. M. Grand Forks  
 Wilson, W. C. Grand Forks  
 Witherstine, W. H. Grand Forks  
 Woutat, H. G. Grand Forks  
 Wylie, A. R. T. Grafton

## SIXTH DISTRICT MEDICAL SOCIETY

## PRESIDENT

Ramstad, N. D. Bismarck

## SECRETARY

Stackhouse, C. E. Bismarck

Arnson, J. O. Bismarck  
 Aylen, W. C. Mandan  
 Benson, O. T. Glen Ullin  
 Bodenstab, W. H. Bismarck  
 Brandes, H. A. Bismarck  
 Brandt, A. M. Bismarck  
 Bunting, F. E. Mandan  
 DeMouilly, O. Flasher  
 Diven, W. L. Bismarck  
 Eastman, L. G. Hazen  
 Fisher, A. M. Bismarck  
 Fisher, Stephen New Salem  
 Gaebe, O. C. New Salem

Gordon, W. L. Washburn  
 Griebenow, F. F. Bismarck  
 Hamilton, E. E. New Leipzig  
 Henderson, R. W. Bismarck  
 Kerner, C. A. Tuttle  
 Larson, E. J. Underwood  
 LaRose, V. J. Bismarck  
 Laughlin, Zach. Fort Yates  
 Leavitt, R. R. Carson  
 Lipp, G. R. Bismarck  
 Lodge, F. B. Steele  
 McLachlan, T. M. Bismarck  
 Monteith, George Hazelton  
 Nickerson, B. S. Mandan  
 Quain, Fannie D. Bismarck  
 Quain, E. P. Bismarck  
 Ramstad, N. D. Bismarck  
 Rice, P. F. Solen

Roan, M. W. Bismarck  
 Robinson, C. O. Bismarck  
 Ruediger, E. H. Bismarck  
 Schipfer, L. A. Bismarck  
 Shoregge, C. W. Bismarck  
 Simon, John Napoleon  
 Smith, C. C. Mandan  
 Smith, L. G. Mandan  
 Smyth, F. R. Bismarck  
 Speilman, G. H. Mandan  
 Stackhouse, C. E. Bismarck  
 Strauss, F. B. Bismarck  
 Timm, J. F. Makoti  
 Thelan, W. P. Wilton  
 Thompson, R. C. Wilton  
 Whittemore, A. A. Bismarck  
 Winchester, H. E. Hazelton  
 Wolverton, W. C. Linton

## STARK COUNTY MEDICAL SOCIETY

## PRESIDENT

Davis, H. A. Dickinson

## SECRETARY

Chernausek, Sam Dickinson

Bowen, J. W. Dickinson

Chernausek, Sam Dickinson  
 Crossette, G. D. Richardton  
 Davis, H. A. Dickinson  
 Kenney, K. K. Beach  
 Law, I. M. Halliday  
 Nachtwey, A. P. Dickinson

Perkins, George A. Dickinson  
 Schierbaum, A. F. E. Beach  
 Smith, O. Kildeer  
 Spear, A. E. Belfield  
 Stickney, V. H. Dickinson  
 Werlich, R. E. Hebron

## STUTSMAN COUNTY MEDICAL SOCIETY

## PRESIDENT

Guest, A. W. Jamestown

## SECRETARY

Gerrish, W. A. Jamestown

Arzt, P. G. Jamestown  
 Buzzell, C. P. Cleveland  
 Cowin, C. C. Jamestown  
 Culbert, M. H. Courtenay

De Puy, T. L. Jamestown  
 Forbes, G. H. Streeter  
 Gerrish, W. A. Jamestown  
 Guest, A. W. Jamestown  
 Holt, G. H. Jamestown  
 Longstreth, W. E. Kensal  
 Melzer, S. W. Woodworth  
 Morsman, C. F. Jamestown  
 Movius, A. H. Jamestown

Nolte, W. C. Jamestown  
 Stokes, G. R. Streeter  
 Todd, G. Medina  
 Titzell, F. C. Jamestown  
 Whitson, J. H. Carrington  
 Wink, Helen K. Jamestown  
 Wood, W. W. Jamestown  
 Woodward, F. O. Jamestown



## TRI-COUNTY MEDICAL SOCIETY

PRESIDENT  
Rankin, J. A. \_\_\_\_\_ Carrington  
SECRETARY  
Van de Erve, H. \_\_\_\_\_ Carrington  
Boyum, P. A. \_\_\_\_\_ Harvey  
Brown, D. F. \_\_\_\_\_ McClusky  
Clark, I. D. \_\_\_\_\_ Harvey

Crawford, John New Rockford  
Donker, A. E. \_\_\_\_\_ Carrington  
Gaebel, E. C. \_\_\_\_\_ Harvey  
Goss, E. L. \_\_\_\_\_ Carrington  
Linker, E. \_\_\_\_\_ Goodrich  
MacKenzie, J. Ross \_\_\_\_\_ Carrington  
MacLachlan, Chas \_\_\_\_\_ New R'kford  
Matthaei, D. W. \_\_\_\_\_ Fessenden

Owenson, H. A. \_\_\_\_\_ Grace City  
Rankin, J. A. \_\_\_\_\_ Carrington  
Stickelberger, Josephine Oberon  
Tompkins, C. R. \_\_\_\_\_ Oberon  
Van de Erve, H. \_\_\_\_\_ Carrington  
Westervelt, A. E. \_\_\_\_\_ Bowden

## KOTANA MEDICAL SOCIETY

Claybough, W. R. \_\_\_\_\_ Grenora  
Hagen, E. J. \_\_\_\_\_ Williston

Johnson, P. O. C. \_\_\_\_\_ Watford City  
Scott, W. B. \_\_\_\_\_ Ray

Skovholt, H. T. \_\_\_\_\_ Williston  
Wicklund, C. A. \_\_\_\_\_ Wildrose

## NORTHWESTERN DISTRICT MEDICAL SOCIETY

PRESIDENT  
Nestos, P. A. \_\_\_\_\_ Minot  
SECRETARY  
Knapp, H. G. \_\_\_\_\_ Minot

Anderson, C. O. Concordia, Kans.  
Blatherick, W. E. \_\_\_\_\_ Van Hook  
Carr, Andrew \_\_\_\_\_ Minot  
Carr, Andy M. \_\_\_\_\_ Minot  
Carter, P. B. \_\_\_\_\_ Parshall  
Christie, J. F. \_\_\_\_\_ Burlington  
Constance, G. M. Blue Earth, M.  
Craze, O. S. \_\_\_\_\_ Towner  
Critchfield, L. R. \_\_\_\_\_ St. Paul  
Devine, J. L. \_\_\_\_\_ Minot  
Dragstedt, C. A. \_\_\_\_\_ Kenmare  
Durnin, G. A. \_\_\_\_\_ Bottineau  
Durnin, Charles \_\_\_\_\_ Westhope  
Ernfeld, H. M. \_\_\_\_\_ Minot  
Ewing, Fred \_\_\_\_\_ Oakland, Calif.  
Ewing, John \_\_\_\_\_ Kenmare  
Fardy, M. J. \_\_\_\_\_ Carroll, Iowa

Flath, Milford G. \_\_\_\_\_ Stanley  
Frogner, G. S. \_\_\_\_\_ Plaza  
Grangaard, H. O. \_\_\_\_\_ Ryder  
Greaves, J. P. \_\_\_\_\_ Sherwood  
Greene, E. E. \_\_\_\_\_ Westhope  
Grogan, J. S. \_\_\_\_\_ Flaxton  
Halverson, H. L. \_\_\_\_\_ Des Laes  
Hammargren, A. F. \_\_\_\_\_ Drake  
Hancock, E. W. \_\_\_\_\_ Carpio  
Hanson, G. C. \_\_\_\_\_ Minot  
Haroldson, O. \_\_\_\_\_ Minot  
Hillis, S. J. \_\_\_\_\_ Berthold  
Johns, S. M. \_\_\_\_\_ Velva  
Johnson, J. A. \_\_\_\_\_ Bottineau  
Kermott, L. H. \_\_\_\_\_ Minot  
Kittelson, J. A. \_\_\_\_\_ Tolley  
Knapp, H. G. \_\_\_\_\_ Minot  
Kolb, F. K. \_\_\_\_\_ Granville  
Landes, H. E. \_\_\_\_\_ Kenmare  
Leedahl, O. S. \_\_\_\_\_ Stanley  
Mackay, A. R. \_\_\_\_\_ Bottineau  
McCannel, A. J. \_\_\_\_\_ Minot

McCannel, Archie D. \_\_\_\_\_ Minot  
Mc Kay, A. R. \_\_\_\_\_ Bottineau  
McLean, N. \_\_\_\_\_ Devils Lake  
Moffatt, George \_\_\_\_\_ Crosby  
Moreland, J. W. \_\_\_\_\_ Maxbass  
Nestos, P. A. \_\_\_\_\_ Minot  
Newlove, J. W. \_\_\_\_\_ Minot  
Pence, J. R. \_\_\_\_\_ Minot  
Pence, R. W. \_\_\_\_\_ Minot  
Rainville, S. \_\_\_\_\_ Crosby  
Ransom, E. M. \_\_\_\_\_ Minot  
Ray, R. H. \_\_\_\_\_ Garrison  
Ritchie, C. K. \_\_\_\_\_ Velva  
Rogers, Joseph \_\_\_\_\_ Alexander  
Rollefson, C. O. \_\_\_\_\_ Ambrose  
Smith, J. A. \_\_\_\_\_ Noonan  
Stevens, E. O. \_\_\_\_\_ Rugby  
Stone, E. C. \_\_\_\_\_ Minot  
Welker, A. J. \_\_\_\_\_ Max  
Wheelon, F. E. \_\_\_\_\_ Minot  
Windell, H. C. \_\_\_\_\_ Williston  
Yeomans, T. N. \_\_\_\_\_ Minot

## RICHLAND COUNTY MEDICAL SOCIETY

PRESIDENT  
Sasse, E. G. \_\_\_\_\_ Lidgerwood  
SECRETARY  
Olson, C. T. \_\_\_\_\_ Wyndmere  
Bean, O. G. \_\_\_\_\_ Walcott  
Christensen, W. \_\_\_\_\_ Lidgerwood  
Durkee, C. A. \_\_\_\_\_ Lidgerwood

Greenman, N. H. \_\_\_\_\_ Fairmont  
Ivers, M. U. \_\_\_\_\_ Christine  
Jacobs, G. C. \_\_\_\_\_ Wahpeton  
Lancaster, Blake \_\_\_\_\_ Wahpeton  
Lancaster, W. M. \_\_\_\_\_ Wahpeton  
Lancaster, W. E. G. \_\_\_\_\_ Abercrombie  
McDonnell, R. H. \_\_\_\_\_ Hankinson  
O'Brien, T. \_\_\_\_\_ Wahpeton

Olson, C. T. \_\_\_\_\_ Wyndmere  
Rice, C. P. \_\_\_\_\_ Wahpeton  
Ryan, D. E. \_\_\_\_\_ Hankinson  
Sasse, E. G. \_\_\_\_\_ Lidgerwood  
Wiig, I. C. J. \_\_\_\_\_ Wahpeton  
Wray, W. E. \_\_\_\_\_ Campbell, Minn.

## SHEYENNE VALLEY MEDICAL SOCIETY

PRESIDENT  
Wicks, F. L. \_\_\_\_\_ Valley City  
SECRETARY  
Moore, W. H. \_\_\_\_\_ Valley City  
Brimi, C. L. \_\_\_\_\_ Cooperstown  
Crosby, E. B. \_\_\_\_\_ Valley City  
Kellogg, P. M. \_\_\_\_\_ Rogers

Lang, A. A. J. \_\_\_\_\_ Sanborn  
LeBien, E. A. \_\_\_\_\_ McHenry  
MacDonald, A. C. \_\_\_\_\_ Valley City  
MacDonald, A. W. \_\_\_\_\_ Valley City  
Moore, W. H. \_\_\_\_\_ Valley City  
Nesse, S. A. \_\_\_\_\_ Nome  
Platou, C. A. \_\_\_\_\_ Litchville  
Pray, E. A. \_\_\_\_\_ Valley City

Spicer, C. E. \_\_\_\_\_ Valley City  
VanHouten, J. \_\_\_\_\_ Valley City  
Wanner, W. B. \_\_\_\_\_ Wimbledon  
Westley, M. D. \_\_\_\_\_ Cooperstown  
Wicks, F. L. \_\_\_\_\_ Valley City  
Zimmerman, S. A. \_\_\_\_\_ Valley City

## SOUTHERN DISTRICT MEDICAL SOCIETY

PRESIDENT  
Plane, J. F. \_\_\_\_\_ Edgeley  
SECRETARY  
Ferguson, F. W. \_\_\_\_\_ Kulm  
Bradley, W. W. \_\_\_\_\_ Marion  
Campbell, C. C. \_\_\_\_\_ Ashley

Ferguson, F. W. \_\_\_\_\_ Kulm  
Grace, J. B. \_\_\_\_\_ Zealand  
Grant, Geo. \_\_\_\_\_ Wishek  
Greene, L. B. \_\_\_\_\_ Edgeley  
Gunderman, H. R. \_\_\_\_\_ Monago  
Hubbard, F. G. \_\_\_\_\_ Cogswell  
Lyle, W. D. \_\_\_\_\_ Havana

Lynde, Roy \_\_\_\_\_ Ellendale  
Maercklein, E. H. \_\_\_\_\_ Ashley  
Maercklein, F. W. \_\_\_\_\_ Oakes  
Meunier, H. J. \_\_\_\_\_ Oakes  
Meadows, E. M. \_\_\_\_\_ Oakes  
Plane, J. F. \_\_\_\_\_ Berthold  
Ribble, Geo. B. \_\_\_\_\_ LaMoure  
Ryan, E. E. \_\_\_\_\_ Hankinson

## TRAIL-STEELE MEDICAL SOCIETY

PRESIDENT  
Martin, T. P. \_\_\_\_\_ Mayville  
SECRETARY  
Vinje, Syver \_\_\_\_\_ Hillsboro  
Cuthbert, W. H. \_\_\_\_\_ Hillsboro

Dean, A. C. \_\_\_\_\_ Hatton  
Glasscock, T. J. \_\_\_\_\_ Finley  
Heimark, A. J. \_\_\_\_\_ Finley  
Hjelle, C. A. \_\_\_\_\_ Portland  
Kjelland, A. A. \_\_\_\_\_ Hatton  
Knutson, O. A. \_\_\_\_\_ Buxton

Little, R. C. \_\_\_\_\_ Mayville  
Martin, Thomas P. \_\_\_\_\_ Mayville  
Savre, M. T. \_\_\_\_\_ Northwood  
Swanson, J. C. \_\_\_\_\_ Clifford  
Vinje, Syver \_\_\_\_\_ Hillsboro

## ALPHABETICAL ROSTER

Alliare, J. \_\_\_\_\_ Lehr  
Anderson, C. O. \_\_\_\_\_ Concordia, Kans.  
Arneberg, J. G. \_\_\_\_\_ Grand Forks  
Arnson, J. O. \_\_\_\_\_ Bismarck  
Arneson, A. O. \_\_\_\_\_ McVile  
Arzt, P. G. \_\_\_\_\_ Jamestown  
Aylen, J. P. \_\_\_\_\_ Fargo  
Aylen, W. C. \_\_\_\_\_ Mandan  
Backus, A. C. \_\_\_\_\_ St. Paul  
Baillie, W. F. \_\_\_\_\_ Fargo  
Bakke, Hans \_\_\_\_\_ Lisbon  
Bayard, W. D. \_\_\_\_\_ Fargo  
Bean, O. G. \_\_\_\_\_ Walcott  
Beek, R. H. \_\_\_\_\_ Lakota  
Beeson, H. B. \_\_\_\_\_ Grand Forks  
Bennett, C. E. \_\_\_\_\_ Aneta  
Bennwell, H. \_\_\_\_\_ Grand Forks  
Benson, O. T. \_\_\_\_\_ Glen Ullin  
Blatherwick, W. E. \_\_\_\_\_ Van Hook  
Bodenstab, W. H. \_\_\_\_\_ Bismarck  
Boutelle, L. \_\_\_\_\_ Bismarck  
Bowen, J. W. \_\_\_\_\_ Dickinson  
Boyum, P. A. \_\_\_\_\_ Harvey  
Bradley, W. W. \_\_\_\_\_ Marion  
Brandes, H. A. \_\_\_\_\_ Bismarck  
Brandt, A. M. \_\_\_\_\_ Bismarck  
Brigham, Frank \_\_\_\_\_ Los Angeles  
Brimi, C. L. \_\_\_\_\_ Cooperstown  
Brown, D. F. \_\_\_\_\_ McClusky  
Brown, W. G. \_\_\_\_\_ Fargo  
Bunting, F. E. \_\_\_\_\_ Mandan  
Burton, P. H. \_\_\_\_\_ Fargo  
Buzzell, C. P. \_\_\_\_\_ Cleveland  
Call, A. M. \_\_\_\_\_ Rugby  
Callander, C. N. \_\_\_\_\_ Fargo  
Campbell, C. C. \_\_\_\_\_ Ashley  
Campbell, Robt. D. \_\_\_\_\_ Grand Forks  
Carpenter, Geo. A. \_\_\_\_\_ Fargo  
Carr, Andrew \_\_\_\_\_ Minot  
Carr, Andy. M. \_\_\_\_\_ Minot  
Carter, J. A. \_\_\_\_\_ Warwick  
Carter, P. B. \_\_\_\_\_ Parshall  
Chernauek, Sam \_\_\_\_\_ Dickinson  
Christensen, W. \_\_\_\_\_ Lidgerwood  
Christie, J. F. \_\_\_\_\_ Burlington  
Clark, I. D. \_\_\_\_\_ Harvey  
Clay, A. J. \_\_\_\_\_ Fargo  
Claybough, W. R. \_\_\_\_\_ Grenora  
Constance, G. M. \_\_\_\_\_ Blue Earth, M.  
Countryman, J. E. \_\_\_\_\_ Grafton  
Cowin, C. C. \_\_\_\_\_ Jamestown  
Craze, O. S. \_\_\_\_\_ Townier  
Crawford, John \_\_\_\_\_ New Rockford  
Critchfield, L. R. \_\_\_\_\_ St. Cloud, Minn.  
Crosby, E. B. \_\_\_\_\_ Valley City  
Crossette, G. D. \_\_\_\_\_ Richardton  
Culbert, M. H. \_\_\_\_\_ Courtenay  
Cuthbert, W. H. \_\_\_\_\_ Hillsboro

Dach, J. L. \_\_\_\_\_ Reeder  
DeMouilly, O. \_\_\_\_\_ Flasher  
Darrow, F. I. \_\_\_\_\_ Fargo  
Darrow, Kent E. \_\_\_\_\_ Fargo  
Davis, H. A. \_\_\_\_\_ Dickinson  
Dean, A. C. \_\_\_\_\_ San Diego, Calif.  
De Puy, T. L. \_\_\_\_\_ Jamestown  
Devine, J. L. \_\_\_\_\_ Minot  
Dillon, J. C. \_\_\_\_\_ Fargo  
Diven, W. L. \_\_\_\_\_ Bismarck  
Dixon, O. C. \_\_\_\_\_ Adams  
Donker, A. E. \_\_\_\_\_ Carrington  
Dragstedt, C. A. \_\_\_\_\_ Kenmare  
Drew, G. F. \_\_\_\_\_ Devils Lake  
Durkee, C. A. \_\_\_\_\_ Ledgerwood  
Durnin, Charles \_\_\_\_\_ Westhope  
Durnin, G. A. \_\_\_\_\_ Bottineau  
Eastmas, L. G. \_\_\_\_\_ Hazen  
Eggers, Aug. \_\_\_\_\_ Grand Forks  
Emert, H. F. \_\_\_\_\_ Sarles  
Engesather, A. D. \_\_\_\_\_ Brockett  
Engstad, J. E. \_\_\_\_\_ Grand Forks  
Erenfeld, H. M. \_\_\_\_\_ Minot  
Erwin, R. M. \_\_\_\_\_ Mandan  
Evans, R. M. \_\_\_\_\_ Minto  
Evans, L. J. \_\_\_\_\_ Fargo  
Ewing, Fred \_\_\_\_\_ Kenmare  
Ewing, John \_\_\_\_\_ Kenmare  
Fardy, M. J. \_\_\_\_\_ Carrol, Iowa  
Fawcett, W. C. \_\_\_\_\_ Starkweather  
Ferguson, F. W. \_\_\_\_\_ Kulm  
Field, A. B. \_\_\_\_\_ Forest River  
Fisher, A. M. \_\_\_\_\_ Bismarck  
Fisher, Stephen \_\_\_\_\_ New Salem  
Flatten, A. P. \_\_\_\_\_ Edinburg  
Flath, Milford G. \_\_\_\_\_ Stanley  
Floew, A. T. \_\_\_\_\_ Harvey  
Forbes, G. H. \_\_\_\_\_ Streeter  
Fortin, H. J. \_\_\_\_\_ Fargo  
Fortun, O. J. \_\_\_\_\_ Grand Forks  
French, H. E. \_\_\_\_\_ Grand Forks  
Frogner, G. S. \_\_\_\_\_ Plaza  
Gaeb, E. C. \_\_\_\_\_ Harvey  
Gaeb, O. C. \_\_\_\_\_ New Salem  
Gerrish, W. A. \_\_\_\_\_ Jamestown  
Gislason, G. J. \_\_\_\_\_ Grand Forks  
Glaspel, C. J. \_\_\_\_\_ Grafton  
Glaspel, G. W. \_\_\_\_\_ Grafton  
Glasscock, T. J. \_\_\_\_\_ Finley  
Gordon, W. L. \_\_\_\_\_ Washburn  
Goss, E. L. \_\_\_\_\_ Carrington  
Gowenlock, H. J. \_\_\_\_\_ Gardner  
Grace, J. B. \_\_\_\_\_ Zealand  
Grangaard, H. O. \_\_\_\_\_ Ryder  
Grant, Geo. \_\_\_\_\_ Wishek  
Grassick, Jas. \_\_\_\_\_ Grand Forks  
Greaves, J. P. \_\_\_\_\_ Sherwood  
Greene, E. E. \_\_\_\_\_ Westhope

Greene, L. B. \_\_\_\_\_ Edgeley  
Greenman, N. H. \_\_\_\_\_ Fairmont  
Griebenow, F. F. \_\_\_\_\_ Bismarck  
Grogan, J. S. \_\_\_\_\_ Flaxton  
Gronvold, F. O. \_\_\_\_\_ Fargo  
Guest, A. W. \_\_\_\_\_ Jamestown  
Gunderman, H. R. \_\_\_\_\_ Monago  
Gustuson, E. V. \_\_\_\_\_ Fargo  
Haagenson, E. C. \_\_\_\_\_ Grand Forks  
Hagen, E. J. \_\_\_\_\_ Williston  
Halldorson, M. B. \_\_\_\_\_ Win'peg, Ca.  
Halverson, H. L. \_\_\_\_\_ Des Lacs  
Hammargren, A. F. \_\_\_\_\_ Drake  
Hamilton, E. E. \_\_\_\_\_ New Leipzig  
Hamilton, J. S. \_\_\_\_\_ Bathgate  
Hancock, E. W. \_\_\_\_\_ Carpio  
Hanna, J. F. \_\_\_\_\_ Fargo  
Hanson, G. C. \_\_\_\_\_ Minot  
Harris, C. B. \_\_\_\_\_ Pembina  
Haroldson, O. \_\_\_\_\_ Minot  
Hayhurst, J. O. \_\_\_\_\_ Rolette  
Healy, H. H. \_\_\_\_\_ Grand Forks  
Heimark, A. J. \_\_\_\_\_ Finley  
Heimark, J. J. \_\_\_\_\_ Fargo  
Henderson, R. W. \_\_\_\_\_ Bismarck  
Hendrickson, Gilbert \_\_\_\_\_ Enderlin  
Hetherington, J. E. \_\_\_\_\_ Grand Forks  
Hill, S. W. \_\_\_\_\_ Regent  
Hillis, S. J. \_\_\_\_\_ Berthold  
Hjelle, C. A. \_\_\_\_\_ Portland  
Holt, G. H. \_\_\_\_\_ Jamestown  
Horsman, A. T. \_\_\_\_\_ Devils Lake  
Hotchkiss, W. M. \_\_\_\_\_ Fargo  
Hougen, H. \_\_\_\_\_ Fargo  
Hubbard, F. G. \_\_\_\_\_ Cogswell  
Huntley, H. B. \_\_\_\_\_ Leonard  
Irvine, V. S. \_\_\_\_\_ Park River  
Ivers, M. U. \_\_\_\_\_ Christine  
Jacobs, G. C. \_\_\_\_\_ Wahpeton  
James, J. B. \_\_\_\_\_ Page  
Jelstrup, Christian \_\_\_\_\_ Kindred  
Johns, S. M. \_\_\_\_\_ Velva  
Johnson, J. A. \_\_\_\_\_ Bottineau  
Johnson, P. O. C. \_\_\_\_\_ Watford City  
Joistad, A. H. \_\_\_\_\_ Fargo  
Jones, W. D. \_\_\_\_\_ Devils Lake  
Kaess, A. J. \_\_\_\_\_ Fargo  
Kellogg, P. M. \_\_\_\_\_ Rogers  
Kermott, L. H. \_\_\_\_\_ Minot  
Kilbourne, B. K. \_\_\_\_\_ Fargo  
Kinney, K. K. \_\_\_\_\_ Beach  
Kittelson, J. A. \_\_\_\_\_ Tolley  
Kjelland, A. A. \_\_\_\_\_ Hatton  
Knapp, H. G. \_\_\_\_\_ Minot  
Knutson, O. A. \_\_\_\_\_ Buxton  
Kolb, F. K. \_\_\_\_\_ Granville  
LaRose, V. J. \_\_\_\_\_ Bismarck  
Lamont, J. G. \_\_\_\_\_ Dunseith



Lancaster, Blake \_\_\_\_\_ Wahpeton  
 Lancaster, W. M. \_\_\_\_\_ Wahpeton  
 Lancaster, W.E.G. \_\_\_\_\_ Abercrombie  
 Landes, H. E. \_\_\_\_\_ Kenmare  
 Landry, L. H. \_\_\_\_\_ Walhalla  
 Lang, A. A. J. \_\_\_\_\_ Sanborn  
 Larson, E. J. \_\_\_\_\_ Underwood  
 Larson, G. A. \_\_\_\_\_ Fargo  
 Laughlin, Zach. \_\_\_\_\_ Fort Yates  
 Law, H. W. F. \_\_\_\_\_ Grand Forks  
 Law, I. M. \_\_\_\_\_ Halliday  
 LeBien, E. A. \_\_\_\_\_ McHenry  
 Leavitt, R. R. \_\_\_\_\_ Carson  
 Leedahl, O. S. \_\_\_\_\_ Stanley  
 Lemieux, Darie \_\_\_\_\_ Bowman  
 Lees, H. D. \_\_\_\_\_ Esmond  
 Lewis, T. H. \_\_\_\_\_ Fargo  
 Link, J. J. \_\_\_\_\_ McVile  
 Linker, E. \_\_\_\_\_ Goodrich  
 Limberg, A. M. \_\_\_\_\_ Fargo  
 Lipp, G. R. \_\_\_\_\_ Bismarck  
 Litman, M. H. \_\_\_\_\_ Tolna  
 Little, R. C. \_\_\_\_\_ Mayville  
 Lodge, F. B. \_\_\_\_\_ Steele  
 Lommen, C. E. \_\_\_\_\_ Fordville  
 Longstreth, W. E. \_\_\_\_\_ Kensal  
 Lyle, W. D. \_\_\_\_\_ Havana  
 Lynde, Roy \_\_\_\_\_ Ellendale  
 MacDonald, A. C. \_\_\_\_\_ Valley City  
 MacDonald, A. W. \_\_\_\_\_ Valley City  
 MacGregor, Murdock \_\_\_\_\_ Fargo  
 Mackay, A. R. \_\_\_\_\_ Bottineau  
 MacKenzie, J. Ross \_\_\_\_\_ Carrington  
 MacLachlan, C. New \_\_\_\_\_ Rockford  
 MacLachlan, T. M. \_\_\_\_\_ Bismarck  
 Maercklein, E. H. \_\_\_\_\_ Ashley  
 Maercklein, F. W. \_\_\_\_\_ Oakes  
 Maercklein, O. C. \_\_\_\_\_ Mott  
 Mahon, Ruth \_\_\_\_\_ Grand Forks  
 Martin, Thomas P. \_\_\_\_\_ Mayville  
 Matthaei, D. W. \_\_\_\_\_ Fessenden  
 McCannel, A. J. \_\_\_\_\_ Minot  
 McCannel, Archie D. \_\_\_\_\_ Minot  
 McDonnell, C. H. \_\_\_\_\_ Hankinson  
 McGurken, C. J. \_\_\_\_\_ Devils Lake  
 McIntosh, G. J. \_\_\_\_\_ Devils Lake  
 McLean Neil, \_\_\_\_\_ Devils Lake  
 McNeil, R. N. \_\_\_\_\_ Gilby  
 McQueen, W. W. \_\_\_\_\_ Langdon  
 Meadows, E. M. \_\_\_\_\_ Oakes  
 Meadows, R. W. \_\_\_\_\_ Sheyenne  
 Melzer, S. W. \_\_\_\_\_ Woodworth  
 Meyers, L. W. \_\_\_\_\_ Fargo  
 Miller, H. W. \_\_\_\_\_ Casselton  
 Miller, J. P. \_\_\_\_\_ Grand Forks  
 Moffatt, George \_\_\_\_\_ Crosby  
 Monteith, George \_\_\_\_\_ Hazelton  
 Moore, J. H. \_\_\_\_\_ Grand Forks  
 Moore, W. H. \_\_\_\_\_ Valley City  
 Moreland, I. W. \_\_\_\_\_ Maxbass  
 Morsman, C. F. \_\_\_\_\_ Hot Sp'gs, S. D.  
 Morris, A. C. \_\_\_\_\_ Fargo  
 Movius, A. H. \_\_\_\_\_ Jamestown  
 Mulder, J. F. \_\_\_\_\_ Cavalier  
 Mulligan, T. \_\_\_\_\_ Grand Forks  
 Munnier, H. J. \_\_\_\_\_ Oaks  
 Nachtwey, A. P. \_\_\_\_\_ Dickinson  
 Nelson, W. P. \_\_\_\_\_ Powers Lake  
 Nesse, S. A. \_\_\_\_\_ Nome  
 Nestos, P. A. \_\_\_\_\_ Minot

Newlove, J. T. \_\_\_\_\_ Minot  
 Nichols, A. A. \_\_\_\_\_ Fargo  
 Nichols, Wm. C. \_\_\_\_\_ Fargo  
 Nicholson, E. G. \_\_\_\_\_ Lawton  
 Nickerson, B. S. \_\_\_\_\_ Mandan  
 Nolte, W. C. \_\_\_\_\_ Jamestown  
 O'Brien, T. \_\_\_\_\_ Wahpeton  
 O'Keefe, Henry \_\_\_\_\_ Grand Forks  
 Oftedal, Arne \_\_\_\_\_ Fargo  
 Oftedal, Sverre \_\_\_\_\_ Fargo  
 Oftedal, Axel \_\_\_\_\_ Fargo  
 Olson, C. T. \_\_\_\_\_ Wyndmere  
 Owenson, H. A. \_\_\_\_\_ Grace City  
 Panek, A. T. \_\_\_\_\_ Milton  
 Stanley \_\_\_\_\_ Fargo  
 Peake, F. Margaret \_\_\_\_\_ Grand Forks  
 Pence, J. R. \_\_\_\_\_ Minot  
 Pence, R. W. \_\_\_\_\_ Minot  
 Perkins, Geo. A. \_\_\_\_\_ Dickinson  
 Peterson, O. T. \_\_\_\_\_ Minot  
 Plane, J. F. \_\_\_\_\_ Berthold  
 Platou, C. A. \_\_\_\_\_ Litchville  
 Platou, L. S. \_\_\_\_\_ Fargo  
 Porter, W. H. \_\_\_\_\_ Calvin  
 Pray, E. A. \_\_\_\_\_ Valley City  
 Quain, E. P. \_\_\_\_\_ Bismarck  
 Quain, Fannie D. \_\_\_\_\_ Bismarck  
 Rainville, S. \_\_\_\_\_ Crosby  
 Ramstad, N. O. \_\_\_\_\_ Bismarck  
 Rankin, J. A. \_\_\_\_\_ Carrington  
 Ransom, E. M. \_\_\_\_\_ Minot  
 Ray, R. H. \_\_\_\_\_ Garrison  
 Ribble, George B. \_\_\_\_\_ La Moure  
 Rice, C. P. \_\_\_\_\_ Wahpeton  
 Rice, P. F. \_\_\_\_\_ Solen  
 Richter, E. H. \_\_\_\_\_ Hunter  
 Rindlaub, Elizabeth P. \_\_\_\_\_ Fargo  
 Rindlaub, John H. \_\_\_\_\_ Fargo  
 Rindlaub, M. P. \_\_\_\_\_ Fargo  
 Ritchie, C. K. \_\_\_\_\_ Velva  
 Roan, M. W. \_\_\_\_\_ Bismarck  
 Roberts, F. J. \_\_\_\_\_ Cando  
 Robinson, C. O. \_\_\_\_\_ Bismarck  
 Rogers, Joseph \_\_\_\_\_ Alexander  
 Rollefson, C. O. \_\_\_\_\_ Ambrose  
 Rothnem, T. P. \_\_\_\_\_ Fargo  
 Rowe, H. J. \_\_\_\_\_ Minneapolis  
 Rudiger, E. H. \_\_\_\_\_ Bismarck  
 Ruud, M. B. \_\_\_\_\_ Grand Forks  
 Ryan, D. E. \_\_\_\_\_ Hankinson  
 Rystad, O. H. \_\_\_\_\_ Grand Forks  
 Sand, Olaf \_\_\_\_\_ Fargo  
 Sasse, E. G. \_\_\_\_\_ Lidgerwood  
 Savre, M. T. \_\_\_\_\_ Northwood  
 Schipfer, L. A. \_\_\_\_\_ Bismarck  
 Schierbaum, A. F. E. \_\_\_\_\_ Beach  
 Schneider, J. E. \_\_\_\_\_ Bowman  
 Schumacker, W. W. \_\_\_\_\_ Hettinger  
 Scott, R. A. \_\_\_\_\_ Crystal  
 Scott, W. B. \_\_\_\_\_ Ray  
 Shoregge, C. W. \_\_\_\_\_ Bismarck  
 Sihler, W. F. \_\_\_\_\_ Devils Lake  
 Simon, John \_\_\_\_\_ Napoleon  
 Skelsey, A. W. \_\_\_\_\_ Fargo  
 Skovholt, H. T. \_\_\_\_\_ Williston  
 Smith, C. C. \_\_\_\_\_ Mandan  
 Smith, Clinton \_\_\_\_\_ Devils Lake  
 Smith, Geo. \_\_\_\_\_ Grafton  
 Smith, J. A. \_\_\_\_\_ Noonan  
 Smith, J. C. \_\_\_\_\_ Thompson  
 Smith, L. G. \_\_\_\_\_ Mandan

Smith, O \_\_\_\_\_ Kildeer  
 Smyth, F. R. \_\_\_\_\_ Bismarck  
 Sorenson, A. R. \_\_\_\_\_ Rugby  
 Spanare, C. I. \_\_\_\_\_ Inkster  
 Spellman, G. H. \_\_\_\_\_ Mandan  
 Spear, A. E. \_\_\_\_\_ Belfield  
 Spicer, C. E. \_\_\_\_\_ Valley City  
 Stackhouse, C. E. \_\_\_\_\_ Bismarck  
 Steeves, E. O. \_\_\_\_\_ Rugby  
 Stickelberger, Josephine \_\_\_\_\_ Oberon  
 Stickney, V. H. \_\_\_\_\_ Dickinson  
 Stokes, G. R. \_\_\_\_\_ Streeter  
 Stone, E. C. \_\_\_\_\_ Minot  
 Strauss, F. B. \_\_\_\_\_ Bismarck  
 Stromberg, G. E. \_\_\_\_\_ Langdon  
 Suter, J. C. \_\_\_\_\_ Grafton  
 Swanson, J. C. \_\_\_\_\_ Clifford  
 Swanson, A. W. \_\_\_\_\_ Bisbee  
 Taintor, Rolfe \_\_\_\_\_ Fargo  
 Taylor, J. D. \_\_\_\_\_ Grand Forks  
 Thelan, W. P. \_\_\_\_\_ Wilton  
 Thompson, A. Y. \_\_\_\_\_ Larimore  
 Thompson, R. C. \_\_\_\_\_ Wilton  
 Timm, T. F. \_\_\_\_\_ Makoti  
 Titzell, T. C. \_\_\_\_\_ Jamestown  
 Todd, Gilbert \_\_\_\_\_ Medina  
 Tompkins, C. R. \_\_\_\_\_ Oberon  
 Tronnes, N. \_\_\_\_\_ Fargo  
 Van de Erve, H. \_\_\_\_\_ Carrington  
 Van Houten, J. \_\_\_\_\_ Valley City  
 Verrett, B. D. \_\_\_\_\_ Rolla  
 Vigeland, J. G. \_\_\_\_\_ Brinsmade  
 Vinje, Syver \_\_\_\_\_ Hillsboro  
 Voss, Carl \_\_\_\_\_ Hettinger  
 Wadel, K. A. \_\_\_\_\_ Fargo  
 Wagar, W. D. \_\_\_\_\_ Michigan  
 Waldren, H. M. \_\_\_\_\_ Drayton  
 Wands, E. E. \_\_\_\_\_ Lisbon  
 Wanner, W. B. \_\_\_\_\_ Wimbeldon  
 Watson, E. M. \_\_\_\_\_ Fargo  
 Weed, F. E. \_\_\_\_\_ Park River  
 Weible, R. E. \_\_\_\_\_ Fargo  
 Welch, W. H. \_\_\_\_\_ Larimore  
 Welker, A. J. \_\_\_\_\_ Max  
 Werlich, R. E. \_\_\_\_\_ Hebron  
 Westeen, A. A. \_\_\_\_\_ Grand Forks  
 Westervelt, A. E. \_\_\_\_\_ Bowden  
 Westley, M. D. \_\_\_\_\_ Cooperstown  
 Weyrens, P. J. \_\_\_\_\_ Sheldon  
 Wheelon, F. E. \_\_\_\_\_ Minot  
 Whittemore, Arthur A. \_\_\_\_\_ Bismarck  
 Whitson, J. H. \_\_\_\_\_ Enderlin  
 Wicklund, C. A. \_\_\_\_\_ Wildrose  
 Wicks, F. L. \_\_\_\_\_ Valley City  
 Widmeyer, J. P. \_\_\_\_\_ Rolla  
 Wiig, I. C. J. \_\_\_\_\_ Wahpeton  
 Williamson, Geo. M. \_\_\_\_\_ Grand F'ks  
 Wilson, W. C. \_\_\_\_\_ Grand Forks  
 Winchester, H. E. \_\_\_\_\_ Hazelton  
 Windell, H. C. \_\_\_\_\_ Williston  
 Wink, Helen K. \_\_\_\_\_ Jamestown  
 Withersine, W. W. \_\_\_\_\_ Grand Forks  
 Wolverton, W. C. \_\_\_\_\_ Linton  
 Wood, W. W. \_\_\_\_\_ Jamestown  
 Woodward, F. O. \_\_\_\_\_ Jamestown  
 Woutat, H. G. \_\_\_\_\_ Grand Forks  
 Wray, W. E. \_\_\_\_\_ Campbell, Minn.  
 Wylie, A. R. T. \_\_\_\_\_ Grafton  
 Yeomans, T. N. \_\_\_\_\_ Minot  
 Zimmerman, S. A. \_\_\_\_\_ Valley City

# THE PASSING OF THE OLD FAMILY DOCTOR: THE PRESIDENT'S ADDRESS

BY JAMES GRASSICK, M.D.

GRAND FORKS, NORTH DAKOTA

As president of your Association it becomes my duty to address you. I can assure you that I fully appreciate the privilege. To be counted worthy of the trust is no small honor. In an organization like the North Dakota Medical Association whose ethical ideals are of the highest, and whose aim is to elevate the profession of medicine to the topmost round of scientific achievement, there is no room for the mercenary charlatan, the get-rich-quick promoter, or the self-seeking adventurer, and far less in its highest elective position for other than him who has won his spurs in his chosen profession and who has demonstrated to his fellows that he is worthy of the office.

In the thirty-four men who have held the office of president prior to the present incumbent, the Association has been extremely fortunate. They, with few exceptions, were "Big men all"—men that would have graced any position of honor or responsibility to which they might have aspired. We may truthfully say, and it is with some degree of pride that we do so, "We have been captained well."

It may be of interest to outline and briefly discuss some problems that we as physicians are called upon, if not to solve, at least, to aid in so doing. Probably no question in late years has so affected modern medicine and its relation to the public as the passing of "the old family doctor." Interwoven as his life was with the social and economic conditions of the people, it is little wonder that a change in the pattern may be discerned in the finished fabric when the web has to be fashioned without him.

"The old family doctor" is a character dear to literature, for his life exemplifies so well the practical application in this work-a-day world of the homely virtues,—sympathetic interest in the welfare of others, steadfast devotion to duty, unselfish service in the cause of human betterment,—that it appeals to the finest instincts of the race. Weelum MacLure, the Doctor of the Old School, has been immortalized by Ian MacLaren, as has been the Village Preacher by Oliver Goldsmith. Of the former it was written, "He served the Glen with a devotion that has known no reserve and a kindness of heart that never failed." and of the latter, "E'en his frailties leaned to

Virtue's side." These worthies were so closely associated in their labors that what is said of the one applies with equal force to the other. Would that our memories might be treated thus considerately.

The family doctor was a product of the age in which he lived and did his day's work. To understand his passing is to be familiar with the progress of human events and the evolution of society. To sigh for his return is as futile as to long for the good old days of our fathers. He would be as much a misfit in this day and generation as a modernist would have been in his. True, he may still be found in some isolated communities, but even there he is in a transition stage and bears little resemblance to his venerable prototype of a preceding age.

There are two great forces in operation in the evolution of the family physician, one acting from within and the other from without. The former found him alive to everything in his limited environment, but out of touch with things beyond. The spirit of man, however, be it in physician, prince, or peasant, has ever rebelled at bondage; and one day—it may have been at a meeting of our State Association—he had a vision of the possibilities outside of his narrow circle. He felt the latent powers within him throb for expression, and ere he knew it he had broken through and shouldered himself out into a world so large as to be bounded only by the limitations of his own finite mind. Once free, after drinking at the refreshing, life-giving springs of the newer knowledge and sipping honeyed sweets from the petals of scientific investigation, he found the doors of opportunity of a larger service standing widely ajar, as if to welcome him within. On entering this "new freedom" it is little to be wondered that, at times, carried away by zeal or influenced by error, he was found chasing some will o' the wisp of doubtful therapeutic efficacy. It was always thus in every great forward movement. One of the latest to cause a ripple on the placid waters of regular medicine was the so-called electronic method of Abrams,—an agency conceived in the subjective ego of an individualist, born in an atmosphere of sordid gain, and reared in the slums of unethical practice. This unhallowed waif,



masquerading in an attractive garb of recent scientific nomenclature and cavorting with the unwary "even as you and I," has had its little day and, like other unfits, will soon cease to be.

In the adjustment of new relations between the physician and his patients, something was dropped by the former that was very vital to his old clientele. For generations he had been not only physician, ministering to their physical needs, but their prophet, priest, and king on matters pertaining to their spiritual, social, and economic welfare. In these affairs he was their confidant, their counsellor, and their guide. He rejoiced with them in their hours of gladness and mourned with them in their times of troubles; he chided the wayward and erring, and applied balm to the bruised and bleeding heart; he was an incentive to the young and robust, and a tower of strength to the feeble and infirm; he was the ideal social worker and the one man who understood their frailties and foibles, to whom they could go and be assured of a sympathetic reception. This relation of physician and patient was a very real thing, for it was backed by memories that welled up like the waters of a wayside spring. Here was a fallow field in no-man's-land that was ready for the planting, and the pseudoscientific cults were not long in discovering it. From a seeding of the proverbial one grain of truth on the receptive soil of human credulity, watered by the showers of a hokus-pokus semblance of scientific plausibility, and activated by the warm rays of mysticism and sympathetic appeals for confidence, they have reaped an abundant harvest. The modern progressive physician took the mystery and mysticism out of medicine and, in so doing, made it easy for the coming of the cults. The ordinary patient knows little of pathology, neither is he supposed to understand and, far less, care for the fine points of laboratory diagnosis or technic. But what concerns him very specifically is whether or not he can get relief. "Our fathers of old," wittingly or unwittingly, were strong on psychological healing. The sympathetic assurances of health they were wont to give were always fortified by the suggestions of help that their heroic doses of Galenicals carried—often of greater therapeutic value than the drugs prescribed. The success of "patents," a few survivals of which may still be found on the shelves of any drug store, was due largely to this element in human nature. In the transition to sugar-coated medication the influence of this airy but potent agency—suggestive therapeutics—was lost, and we for a time failed to find a satisfactory

substitute. This was a grievous error that cost us much in prestige, if not in concrete remedial results. The Irregulars were quick to sense our weakness and immediately capitalized it. By dint of persistent, blatant, publicity and in spite of their utter disregard of the most rudimentary scientific truths, they have won a measure of popular recognition.

Coincident with the passing of the family physician was the coming of the modern specialist. Formerly he was known as specialist who could best "box the craft" and give the most up-to-date, all-round medical and surgical service to those in need. Those of the progressive type—and they have always been with us—developed into this class, and, be it said, a considerable number succeeded in covering the field in a way that cast no discredit on the profession. In conformity with the general acceptance of this view, an honored member of our Association in the earlier years of its history ran a card in his local paper—"Specialist of all diseases of men, women, and children." It is a far cry, however, from this kind of practitioner to the modern scientifically trained specialist. But this much may be said, that the wider viewpoint of the general practitioner is often lost in studying disease problems from a limited angle of observation, and especially so at a time when so much stress is laid on laboratory findings in diagnosis, and when the tendency is to study the disease rather than the patient. General practice in a rural community would, in some measure at least, provide the essentials of stability for a superstructure of specialism.

The great difference between the specialist of the old school and of the newer order is that, whereas the former had a well-defined policy of expansion, covering as many departments of medicine as possible, the latter has one of contraction, restricting the study to a limited number. No organ in health or disease can be properly understood unless studied in its relation to other organs and to the body as a whole. Neglect of this basic principle has, undoubtedly, at times brought severe criticism on specialized medicine. A physician has a legal right to practice in any department he desires, but he has no moral right to pose as an authority or specialist merely because he so chooses to limit his work. To do so without definite preparation may bring into disrepute some very important division of the healing art, and breed skepticism in the mind of the public as to the character of our standards or the integrity of our motives.

Another movement of far-reaching importance within the profession is the growth of so-called group practice. The idea is not new, but its practical application to modern problems is a product of the present age. It came as a sequela of specialized medicine, with organization and co-operation as adjuvants. In the business world, these latter forces, like the wand in the hand of a skilled magician, have brought order out of chaos and success out of failure. It was only a step to the medical profession, for it was realized that art, no less than trade, has its business side. The advances made in our knowledge of the allied sciences, the widening of our field of service, and the perfecting of laboratory technic are influences that are working against the one-man unit; but groups that are dominated by the spirit of selfish commercialism have no place in modern medicine.

The day of arm-chair diagnoses is practically a thing of the past. Patients are demanding up-to-the-minute tests, and these may mean more to the laity than their intrinsic value would seem at times to warrant. He who does not avail himself of modern methods in solving obscure disease problems can hardly expect to hold the confidence of the people and, far less, to merit the endorsement of the profession. Ideal group practice furnishes a rational means of meeting the requirements without destroying the individuality of the physician. It gives the friction of mind on mind so necessary to bring out the luster; the close co-operation of fellow-craftsmen to promote the spirit of brotherhood and helpfulness; the stimulating spirit of rivalry that knows no allegiance but to truth; the elimination of dilatory and wasteful methods that the best there is in us may be conserved for the uplift of humanity; the availability of laboratory facilities without which modern medicine would be a misnomer; and, what is of great importance to the patient, a body of experts under a guiding spirit with no other end to serve than the proper understanding of the subject under consideration and the application of indicated therapeutic measures. It has been said that clinics are cold, heartless, unsympathetic things. The same criticism applies to science and even to nature in the working out of her eternal purposes. They may appear so in contrast to the freedom, familiarity, and cordiality of the home; but the heart of the true physician, whether in clinic or cabin, remains the same and will so continue as long as there is suffering to relieve, disease to combat, or grief to assuage. Modern medicine in the

group, when dominated by a strong ethical personality, is our art at its best.

While these changes were going on within the profession, others quite as evolutionary were taking place without. The radical transformation of industry; the marked change of living conditions; the passing of the simple life with all of its domesticity and charm; the coming of the new wage scale with its influence on the servant question; the development of the internal combustion engine, revolutionizing transportation and cartage; the popularization of hospital service; the general use of the telephone, eliminating time and space; the introduction of the free mail delivery system, keeping rural communities in touch with world events, are among the influences that have a bearing on our profession.

It is within the memory of many now living that the call for the doctor was made by special messenger. When a distance of, say, ten miles had to be covered it took from two to three hours under the most favorable circumstances before he was available. Contrast this with the present conditions if you will. Under similar circumstances with telephone and auto at our service, a call of fifty to seventy-five miles can be made as quickly. It is not too much to predict that in a decade, with radio and aëroplane, a radius of two hundred miles may be similarly served. These unthought of revolutionary changes place the remote country districts that formerly were served by a local physician, in comparatively close touch with medical centers. But they do not supply the personal touch of the family physician in community life with all that it implies of sympathy and of deep concern for the moral, social, and physical welfare of those among whom he labors. Here is a widening gap that our modern methods of training are doing little to remedy. The average graduate fresh from a seven-year course where he has had free access to well-equipped laboratories, finds it difficult to practice in a rural community where there are no such facilities, so he seeks the medical center. The fundamental economic principle, that increase of cost or lack of adaptability restricts distribution, applies with equal force to Fords, Franklins, or physicians. From this lack of distribution comes the cry of the masses from outlying districts for service, and, if not supplied, it is only a step to "state medicine" with its paralyzing influence on individualism.

There was a time, and not long ago, when the practitioner of medicine was surrounded with a halo of privacy, when anything like publicity was



regarded as an intrusion, alike inimical to the best interests of his patients and the profession. Of late this veil has been ruthlessly removed, and the glaring headlight of publicity has been flashed on his actions. He finds his patients' ailments heralded and discussed on the telephone throughout the neighborhood before he has time to leave the sick-chamber; he finds his diagnoses and treatments subjected to a professional and lay scrutiny that at times is anything but comforting; he finds that his isolation and individuality are being alike annulled; and, in short, that he is bound in a thousand ways to his environment, and, unless he can fit in, so to speak, to the new order, he must of necessity be weeded out.

If we accept Spencer's definition of life as "the continual adjustment of internal relations to external relations" we can readily see how the old family doctor was eliminated. The changes in his surroundings were so many, so rapid, and so radical that he lost "correspondence" with them and was thus unable to appropriate such environmental pabulum as was necessary for his existence. And so the passing of the old family doctor was in conformity to the workings of immutable laws; and these same laws have given us as his successor, as so aptly stated by McGuire, "A type perhaps less ethical and more mercenary, but it is certainly a scientific instrument of greater professional efficiency." With this new equipment the profession should be in a position, not only to hold what it has already won, but to strive for and achieve still greater heights. We may not be able to stay the forces that are at work, but, if we are to retain "our place in the sun," we must keep in active vital relation with them, influencing them and being influenced by them.

During the past few decades there has accumulated a great fund of information on medical subjects that, if made available to the masses through the channels of regular medicine, would go far toward checking in the public mind those feelings of doubt and distrust that are being fomented and fostered by the cults. We are the recognized, logical repository of this knowledge and its rational dispenser. The American Medical Association has sensed this need, and *Hygeia*, a splendid publication, has been launched. With its less than 5,000 paying lay subscribers, its influence where most needed has hardly been felt. The best that can reasonably be expected from this source, for some time to come, will only be a partial relief. We need a more direct contact with the masses than any periodical can give us,

and the personal touch of the regular physician is the agency of choice.

There has grown up in our state and elsewhere in late years a number of social and welfare organizations and independent health agencies that are wielding a very far-reaching influence. Their membership is representative of the best in American citizenship. The latest additions to the list are the so-called luncheon clubs which are international in scope and operation. Here are inviting fields that have hardly been touched, let alone tilled. Judiciously planted with the vigorous seedlings of medical thought, they would in due time yield a fruitage that, in the words of the late Oom Paul, "would astonish the world." Nor are they difficult of approach. On the contrary, they are eager for the truth and anxious to hear an authoritative message. Supplied with the facts, they immediately become a force that must be reckoned with. Every local medical society in the state should have a publicity committee whose special business it is to keep in close touch with all such organizations and agencies and supply them and the public, systematically, with authentic information on things medical. This personal touch of the physician with the most influential elements in community life would, in large measure, if properly conducted, control the situation. However distasteful personal advertising may be to the profession and however detrimental to the morals of the community, there is no doubt whatever that a campaign of publicity under proper safeguards embracing a discussion of the simple practical facts relating to health and to disease prevention, the more intricate problems of the practice of medicine, and the relation of the medical profession to the people whom it serves, would have a decided influence in creating in the public mind the confidence, appreciation, and respect that is due an honorable and learned profession. The day is past when the medical profession needs to hang its head and hide its face. Having won a place among the great public benefactors of the race it should openly and aggressively lay claim to recognition. In a generation, by its control of disease processes it has added over ten years to the span of human life, and, if the known knowledge of preventive measures were rationally applied, as many more years could be added. The democracy of the future rests on the intelligence of the masses, and the profession of regular medicine is charged with a duty that it cannot with impunity ignore.

Unless the medical profession recognizes these

obvious avenues of approach and directs its activities in ways that are indicated by the trend of the times, we run the risk of sacrificing our most cherished birthright—the molding of public opinion, the greatest force in a Democracy! We cannot afford to let this happen. The people cannot afford to have it happen, and we are their guardians. To stand idly by and allow the enemy to advance unchallenged over the sacred soil of ethical medicine would be unworthy of the best traditions of our profession. No, "They shall not pass."

Just a word in conclusion. With the passing of the Old Family Doctor came the exit of his adventurous brother, the Pioneer Physician of the West. It has been generally recognized that there have been left but few authoritative records and these meagre, to tell the tale of his labors and influence in the stirring times in which he lived. For information along these lines we have to rely largely on personal ken, which is limited; on narratives from faulty memories; or on such scraps as are available in files of local

or state periodicals.

It has been our desire and endeavor to rescue from obscurity and preserve for the future such historical data bearing on North Dakota Medicine as was readily available; and the accompanying manuscripts represent the result of our labor. It goes without saying that the summary is far from complete. It is our earnest hope, however, that it may form a nucleus around which may grow, as the years go by, a more pretentious narrative bearing on the profession of medicine in our state.

It has been a great pleasure to give to this the time that was necessary, and my deep regret has been that I had not enough at my disposal to fashion a product worthy of the theme. Such as it is, however, I offer it as my contribution to the profession under whose banner it has been my privilege to serve; and as a tribute of gratitude to my fellows of the North Dakota Medical Association who have so indulgently honored me with their counsel, their friendship, and their good will.

## CHEST CONDITIONS SIMULATING TUBERCULOSIS: A CLINIC\*

By J. S. PRITCHARD, M.D.

President Mississippi Valley Tuberculosis Association; Chief of Department of Pulmonary Diseases, Battle Creek Sanitarium  
BATTLE CREEK, MICHIGAN

Mr. President, Members of the Association:

In considering the subject of "thoracic conditions simulating pulmonary tuberculosis," it necessarily means that we must take up the question of differential diagnosis.

In the diagnosis of any thoracic condition we have three methods at our disposal by which we have arrived at reasonably logical conclusions, namely:

1. A carefully taken history.
2. A physical examination, including an x-ray study.
3. Laboratory methods.

Any one of these methods may give us sufficient information in a given case to make a positive diagnosis of a lung condition. Any two may often give us sufficient evidence. But if we are desirous of obtaining all possible information from our cases, and about our cases, we must use all the available means at our disposal, namely, the three above mentioned methods.

In the carefully taken history there are a few essential points: first, the history of past pleurisy, wet or dry. If the pleuritic attack is not associated with an acute upper respiration infection or does not follow in the wake of a recent operation we feel that such a pleurisy is due to the tubercle bacilli in at least 80 to 85 per cent of these cases, and such cases should be treated, not as a case of pleurisy, but as one of manifest tuberculosis. The tubercle bacilli have formed a lesion in the pleura the same as if they were a stage farther on in their destruction in the lung tissue proper, and this is the time to save that patient. Such patients should have absolute rest, and when the symptoms subside work should not be resumed. Cases of this nature must be placed under supervision for a long period of time after the pleurisy has subsided, and their general life must be regulated.

The next point in the history is that of hemoptysis. What is hemoptysis? It is the expectoration of a dram or more of bright, fresh blood. In all probability that amount of blood is intra-

\*Presented at the Forty-first Annual Meeting of the South Dakota State Medical Association, Mitchell, S. D., May 21-22, 1924.



pulmonary, and, if it is intrapulmonary, a heart lesion can usually be ruled out. It is from a pulmonary tuberculosis in about 75 to 85 per cent of the cases.

The third point in the history is that of fistula in ano, and that may be practically considered the same as pleurisy.

I am going to mention only those three points in the history, as I do not wish to discuss points to be taken up by the other speakers on the program.

The physical examination, the second point, is important, and we must remember that a physical examination does not necessarily take half an hour or an hour, as we have often been told by those of us who have suffered from specialitis. Fifteen minutes can give you a great deal of information about the chest, and do not forget that, before you consider anything you find abnormal in the chest, particularly with your stethoscope, the upper respiratory tract is an important factor in causing many of these signs. Any stenosis may cause râles in the upper part of the lung. It is even possible that it may cause grouped râles. Therefore, know the upper respiratory tract before you give an opinion on the lower.

Third, remember that part of this physical examination should include an *x*-ray study. Why do we put the *x*-ray examination in with the physical? We have been taught that the fundamentals of diagnosis are percussion, palpation, auscultation, but first of all inspection, and we examine the chest to see if there are any abnormalities regarding the contour, the size, the type of chest, irregularities in outline, the movement, and then we go inside the chest with our *x*-ray and continue our inspection through the medium of the *x*-ray, be that fluoroscopic or by the film. Remember that the fluoroscope in *x*-ray study is a register of motion. It is true that it will show up certain densities in the lung tissue, but do not rely on that. The stereoscopic film is much more important and advantageous, as it shows up in detail more defects and you have a permanent record for your files.

Laboratory methods are sadly neglected. It is of interest to note that frequently when some suspected condition or symptom makes it advisable for us to have the patient examined, or to examine the patient's chest, we feel that if we have had an *x*-ray examination we have had everything. No one appreciates the *x*-ray more than I do, but do not forget to have the sputum examined. This is often neglected by all of us, and a sputum examination is a very fundamental thing to speak about in a gathering of this type,

but, nevertheless, it is often neglected. In cases of doubt, where you have made a number of sputum examinations and found no evidence of acid-fast bacilli, do not forget the guinea-pig inoculation. Send the sputum to the State Board Laboratory, because when you consider that you can inject a cubic centimeter of sputum into the peritoneum of a guinea-pig, and if only a few bacilli are present the chances are that you will get a positive case within six weeks time, you can see the advantage over the examination of the very small amount of expectoration that one examines under the microscope after picking it up on a platinum loop, and you can realize fully what a small amount is covered by one ordinary examination of the sputum.

After all these methods have been employed I find that a borderline case or an early case of pulmonary tuberculosis is very difficult to diagnose. I have no sympathy with the specialist who is always maligning the general practitioner because he fails to make a diagnosis of tuberculosis in its incipency. After twenty years in the work I feel a great deal of hesitancy in diagnosing many cases of tuberculosis, unless I have certain signs, like grouped tuberculous râles or something definite. The first two years it seemed difficult for me to be mistaken in my diagnosis. Within the next two years I thought possibly that some mistakes were made. Since then I have learned how easy it is to make a mistake. Let us now apply these three methods of diagnosis to some cases simulating pulmonary tuberculosis and illustrate the interesting points with lantern slides.

*Slide 1:* Taking up lung pathology let us, for convenience sake, divide the lung into three vertical zones, the inner, the middle and the outer; and three horizontal zones, the lower, the middle and the upper. We realize fully that in the upper and outer third is the most likely geographical position for the beginning of a pulmonary tuberculosis. We realize also that, according to our early teachings, the base is probably the least likely location in which to have a pulmonary tuberculosis confined to that area alone, while a few isolated tuberculous lesions are confined to the middle zone itself.

Speaking of the vertical inner zone, or the long root, it is difficult to diagnose hilum tuberculosis. There is no group of signs from the physical examination that is pathognomonic. We can diagnose enlarged bronchial glands. The *x*-ray examination does not help us to differentiate. It shows definitely the size of the glands, but many things will give enlarged long root

signs or shadows or densities, namely: upper respiratory stenosis, a deflected septum, and infected sinus, enlarged and infected toxic tonsils, and certain types of decayed conditions in the teeth. Again, we may get enlarged long root zones from vocational conditions, such as dusty occupations. We may have a congestion in this area in certain forms of cardiac conditions, and therefore find it hard to make a differential diagnosis. It is most difficult to prove that this child is suffering from a tuberculous adenitis. We can safely say that she is suffering with symptoms which suggest a tuberculous adenitis and should be treated accordingly.

We may divide the pathology into two groups: first, that type of infection which involves bronchial tree and leaves nothing but an enlarged bronchial branch.

The next type is the one where the bronchial branches begin to coalesce and interlace, and then you have a definite, fixed sign on the röntgenogram. When that occurs in the upper third, and particularly in the outer third, with the thickened bronchial trunk through a long root zone, we have perhaps our most pathognomonic sign of pulmonary tuberculosis, if we can rule out pneumonia.

After this geographic scheme we will try to apply it to the cases which will follow, associating with it the three methods mentioned of diagnosis.

*Slide 2:* Here is a case in which from the physical examination we have a typical pneumonia. There was bronchial breathing, a few fine râles, temperature of 105° F., a leukocytosis of 19,000, and nothing of importance in the patient's previous history. A girl of twenty-five was suddenly taken ill with a typical syndrome known as influenza.

*Slide 3:* Here is the same case about four weeks later. The physical examination shows no abnormal signs in this right apex. You can see that the shadow has disappeared and the patient is apparently restored to her accustomed health. The history, the physical examination, and the röntgenogram all give us a reasonable picture of pneumonia. The laboratory in this instance made the differential diagnosis. Nine sputum examinations showed no acid-fast bacilli but the guinea-pig died of a generalized tuberculosis.

There is a great difference in what we do in this case as regards treatment. This is a tuberculous case, and in all probability there was superimposed on it an influenza and a bronchopneumonia. Prolonged treatment for an active tuberculosis is essential.

In the next case symptoms suggested some toxemia, which lasted for about ten days, and the expectoration of considerable pus with a foul odor. Tonsillectomy was performed under general anesthesia three weeks prior to the discovered fever. I am not saying which is the better way to remove tonsils. We get lung abscesses from other causes than the removing of tonsils. Do not misunderstand my statement. I am only showing you this case in the way in which it was presented to me when the patient came in for diagnosis. The x-ray and the physical findings are those of a tuberculosis, the history is not, and, I think, we can assume that it was not a tuberculous condition because elastic tissue was found in the sputum, and the guinea-pig inoculation was negative to tubercle bacilli. When we have elastic tissue in the sputum we certainly have a change in the lung structure, and if this occurs in connection with negative guinea-pig inoculation I think we are justified in assuming that it is a case of non-tuberculous lung abscess.

*Slide 4:* This shows the case three months after rest in bed. Some get them better by pneumothorax, but this is the result of absolute rest in bed.

*Slide 5:* Here is another case which is confusing to those of us who are attempting to practice internal medicine. Dr. Dunn would spot this immediately. This boy is nineteen years of age. His previous and family history are negative regarding tuberculosis. He came for diagnosis on account of hemoptysis. He had expectorated a considerable amount of bright, fresh blood, the Röntgen findings which you see show considerable coalescing markings in the upper left lung, and to some extent on the right, with the bases reasonably clear. Râles, increased on cough were elicited in the upper left lung, such findings were characteristic of pulmonary tuberculosis. But the patient showed a distinct mitral insufficiency, and digitalis with three months in bed practically cleared up the symptoms, x-ray evidence and physical signs. This is shown to illustrate to you that venous congestion does not necessarily confine itself to the base in cardiac or circulatory conditions. It may go up to the apex and confine itself to that region alone. Of course, this is the exception and in the ordinary cases we find it at the base, but here we see it simulating tuberculosis.

*Slide 6:* The next case represents a density in the upper right lung associated with feeble breath sounds but no râles were heard. On percussion there was decreased resonance, and there was an afternoon fever of 100.6° to 101° F.; the post-



mortem revealed secondary carcinoma. Fever is a very common symptom of thoracic malignancy.

*Slide 7:* Here is another case which I was sure was tuberculosis. Why? The patient's father died of tuberculosis. There was decreased resonance on percussion. True, there were no râles. It was at the time when we used plates instead of films in the  $x$ -ray work, and the odd plate was broken. A single plate was read and a diagnosis of tuberculosis was made. The patient returned in two weeks, when I made another examination which included a stereoscopic view, and it revealed an exostosis of the clavicle and first and second ribs. Let no one tell you that a single  $x$ -ray chest film is as important or as valuable as a stereogram.

*Slide 8:* This is a case illustrating what sometimes occurs in young adults from fifteen to twenty-five years of age, a condition which is difficult of diagnosis and is often overlooked. This patient had a negative family history, an unimportant personal history, and was in perfect health until an attack of influenza during the epidemic, and tubercle bacilli were found in the sputum. Grouped râles were found in the back, and you see the coalescing shadow extending horizontally out from the right root zone with both apices apparently clear. I have followed this case for a year, and the patient is recovering. The geographical situation is in the lung with the base and apex clear, an atypical position, an unusual onset, and our lesson in this case is, always examine the sputum in cases of acute upper respiratory infections.

*Slide 9:* This slide shows you the chest of a man aged sixty-seven who was going around with his own diagnosis of chronic bronchitis and receiving little or no relief from Florida, from Arizona, or from some of the various cults. Here\* (indicating) is a round distinct cavity, grouped râles were easily elicited over this area, and prolonged, blowing breath sounds were quite easily obtained; and yet he had no involvement of the apices or the left lung, but he had tubercle bacilli in his sputum.

*Slide 10:* I had just finished a very interesting talk to the father of this young man and told him he was suffering from chronic lung abscess. He has all the cardinal symptoms of lung abscess following pneumonia two years prior to this. He has the typical fetid expectoration, and he can, by changing position, empty this cavity when full, or partly full. After the sputum examination came back negative I felt satisfied in giving an opinion. Then the next examination and all

others showed many tubercle bacilli in the sputum. Repeated sputum examinations are necessary.

*Slide 11:* Here is something about the lung root zones. The history in the case showed that the child had been exposed to tuberculosis. The physical examination revealed some râles over this area (indicating), but the röntgenogram showed, as you can see, the quite definitely enlarged lung root zone on this side (indicating), and all the appearance of tuberculous change.

*Slide 12:* Here is the same thing forty-eight hours later, showing more than one-half diminution in the size of this lung root. I am satisfied that this was a low-grade hilum pneumonia. On questioning the parents carefully it was found that the child was exposed to some other children who were suffering from an epidemic of right upper lobe pneumonia. I show it to help us to be careful before making a diagnosis of chronic adenopathy in children.

*Slide 13:* Here is the picture of a young man who had a frank pulmonary hemorrhage. He was nineteen years old, and the family history showed definite signs of frequent exposures to an open case of tuberculosis in the family. There was no evidence of any abnormality from the physical examination or röntgenographic findings and no expectoration, yet here (*slide 14*) showing frank right lung root enlargement, is the same case two months later without any evidence of the appearance of symptoms, except slight afternoon fever. I feel satisfied that in this case we are dealing with glandular tuberculosis, and this boy should be treated accordingly, and parents have been so advised.

*Slide 15:* This brings us into cases of enlarged lymph tissue in the thoracic area. This is Hodgkin's disease. There are three types that we may meet: the type we know so well with the enlarged cervical glands; another type with the enlarged bronchial glands with nothing in the cervical region; and the third group with or without fluid in the chest. In this instance we have the type of bronchial enlargement minus the cervical, plus the fluid. You can see that the diagnosis here is a little difficult because nearly all of this type of cases will show a definite elevation of temperature,—99.2° to 100° to 101° F., daily. Naturally, the patient has cough and an expectoration from pressure. The differential diagnosis can be helped very little by repeated blood examination. The Wassermann reaction in this case is negative, but on deep  $x$ -ray therapy this patient showed a very dramatic change in forty-seven days. That, I think, is quite an important point

in differentiating between thoracic malignancy with a large amount of glandular enlargement and Hodgkin's disease. When you have a malignant mass here (indicating) the deep  $x$ -ray therapy does not melt it away in so short a time as in cases of Hodgkin's disease, so I think this may be considered as a diagnostic point.

*Slide 16:* Here is another case of Hodgkin's disease, to show you a different type. This is a combination of cervical and bronchial enlargement, and three months later the result of deep  $x$ -ray therapy. All these cases which I have shown you have had a general examination consisting of urinalysis, chemical and microscopic, complete blood chemistry, blood pressure,  $\text{CO}_2$ , thorough examination of the nose, throat, teeth and tonsils, blood Wassermann, and a fluoroscopic study of the chest; then the internist has gone over the chest very carefully from the standpoint of general medicine, and the patient has then been referred to my department for a clinical study of the chest, so I am only pointing out to you the positive findings.

*Slide 17:* Now we come to surgery of the chest. This patient has a cough of four months duration. She is a nurse, twenty-eight years old, and has been having some elevation of temperature for four or five months, but her temperature never has gone above  $100^\circ \text{F}$ . She is very nervous and is afraid she has tuberculosis. The physical examination was negative, the history was negative, and the laboratory findings were negative; but in the röntgenogram we see a cervical rib. Does this cervical rib cause pressure, and has it anything to do with the cough? The upper respiratory tract is normal. We told the lady just what we had found, and stated that we did not know whether it caused the cough or not. She said, "Let us take the rib out," so Dr. Case and I proceeded. We removed the rib but found that the floating end was adherent to the pleura, and in taking it out we caused a collapse of the lung—proving conclusively that there were no tuberculous adhesions. This patient two and a half hours afterward developed respirations of over 60, her temperature ran up to  $104^\circ \text{F}$ ., and she became cyanotic. We placed a needle in the lower part of the lung and started the motor running, just as if we were pumping fluid out. Whether we did any good or not, I do not know, but here (indicating *Slide 18* showing a re-expanded lung with cessation of symptoms) is the case three hours later. This occurred four years ago, and she has had no signs of tuberculosis since. I am not saying that the cervical rib caused the cough, but she has been cured.

We sometimes find an enlarged thyroid pressing on the trachea and causing very serious symptoms in the form of embarrassed respiratory function.

*Slide 19:* Here is a large thyroid weighing about one and a half pounds, and you can see the calcification around it.

*Slide 20:* We have here the case of a man who had empyema following pneumonia, of eight months' duration. He had some paste here (indicating) and proceeded to cough the paste up, proving that he had a bronchial fistula. I know it is not considered good form to fill these with paste, but this was done five years ago so I trust I may be forgiven. We filled it so full of paste that some of it must have stuck, the patient was placed on complete rest for five months, and he is clear, showing the value of rest in some conditions other than tuberculosis.

*Slide 21:* This is another case of a heart condition, emphasizing the fact that Dr. Dunn brought out, that rest in bed is a very important procedure. You can see that there is a venous congestion at both bases with fluid in the left pleural cavity. The next slide shows the improved condition after six weeks in bed without digitalis.

*Slide 22:* I am showing you this because I know you are interested in this condition, and that is pneumoconiosis. I show you this because your worthy President gave me a very important point yesterday, that whenever he found grouped râles in these cases he felt very sure in saying tuberculosis. The important thing about that is that in these cases they are reasonably free from râles in the earlier stages, and you are very dramatically surprised when the röntgenologist shows you the röntgenogram and you see such an extensive density as this. That tuberculosis is a complication of pneumoconiosis cannot be disputed. Whether it is a forerunner or a follower I cannot say. My belief is that the patient aggravates glandular tuberculosis, which spreads along the lung tissue, and as the circulation is not good it makes a rapid advance into the pneumoconiotic tissue.

*Slide 23:* This is a definitely enlarged thymus in a child having all the symptoms found in such a condition. Deep  $x$ -ray therapy relieved the symptoms and diminished the thymus in size.

*Slide 24:* In this illustration, we have a case of a man of two hundred and ten pounds seeking relief of cough of over four years duration. He has some afternoon rise in temperature. He has some expectoration, and is negative to guinea-pig inoculation. His Wassermann reaction was anti-



complimentary the first time and also the second. Physical examination showed a dense change at the base of the left lung in the form of increased percussion note, and the breath sounds were feeble, no râles being present. The dulness was very pronounced. A provocative arsphenamin injection has resulted in a positive Wassermann reaction ever since, and under antisyphilitic treatment, you see, the same case here six months later. The left base, as you see, is entirely clear. Physical examination is negative; the patient has lost his symptoms and is apparently well. I am not saying that this is a syphilitic lung, but the action of this lesion under antisyphilitic treatment suggests luetic gumma.

*Slide 25:* Here is the same type of case showing an extensive lesion in the base of the right lung and to some extent on the other side, a few râles, and a positive Wassermann reaction. Some of these cases have been reported as pulmonary syphilis. This case was examined later at post-mortem and it proved to be a typical brown induration due to myocardial degeneration. Syphilis of the lung is very rare, regardless of what we have read in many articles.

*Slide 26:* Here is the case of a woman twenty-nine years old, whose history is unimportant. Physical examination showed a typical pneumonia in the left apex, and the röntgenogram confirmed it. The patient was not acutely ill. She had been expectorating some blood-streaked sputum for several weeks and went to a nose and throat specialist to see if there was anything in the upper respiratory tract to account for this. The upper respiratory tract was negative, and we see here an interesting case. On this side (indicating) practically no air could get into the lung. It is a blocked bronchus.

*Slide 27:* Here is the same case thirty-four days later. This density in left apex still persists, but you see the size of the right lung root has increased (indicating); this triangular type of lesion with the base toward the long root, definite in outline, is very suggestive of malignancy. That patient died four days after the last examination, or seventy-two days after she was first observed, of sarcoma, so far as we could determine of primary type, verified by Dr. Warthin.

*Slide 28:* This is the case of a brakeman off work for two weeks. He developed a cough and had afternoon fever. The condition was diagnosed as tuberculosis because the physical signs were quite definite. The röntgenogram gives definite evidence of malignancy here (indicating). The same case at the post-mortem

twenty-nine days later showed primary sarcoma so far as could be determined. When we say that pulmonary and mediastinal sarcoma are of long duration we are mistaken.

*Slide 29:* Here is the primary lesion in this case (indicating), carcinoma. Here are the definite nodules, very distinct, round, cherry-like shadows seen in the lung, and the metastases respond readily to deep x-ray therapy, while the primary lesions do not.

*Slide 30:* Here is a type of calcification in the whole side of this chest, one solid mass, as if it has been placed there with plaster of Paris. This is only to show you what Nature will do in restoring and protecting the lung and pleura. This patient gave a history of pleurisy fourteen years before, necessitating incapacity and rest for over seven months. You can see the calcareous deposit up in this lung, and three weeks later she came in to me with over one hundred lung stones which she had expectorated.

*Slide 31:* Here is a case I wish to show you to illustrate a calcification of the pericardium, which is not common. Only ninety-one cases have been mentioned in the literature and Dr. Case reported this one a year ago.

I wish to say a word or two of the value of visualizing a posterior mediastinum. This man (*Slide 32*) has all the symptoms of angina. The anterior röntgenogram does not show anything very alarming in a patient of sixty-two years. The aorta is hooked a little, and the hooking of the aorta suggests pressure, but here on the oblique visualization you can see the calcification in the walls outlining both the anterior and posterior border of the entire thoracic aorta.

*Slide 32:* Again, you would hardly realize from this anterior exposure of the chest by x-ray that this aneurysm here (indicating) was causing definite pressure, atrophy in the fifth dorsal vertebra, and accounting for a persistent pain which the patient had for four years between the shoulder blades. This is a syphilitic condition in a man sixty-two years old, and we feel that in a normally-sized heart when we find an aneurysm of the aorta it is more likely than not to be of syphilitic origin.

*Slide 33:* Here we have a definite thickening of the whole aorta, while the anterior view (indicating) is seemingly a normal condition.

*Slide 34:* The anterior view of this case, another one of angina of the true type; and this aorta is hooked to the left very definitely. The heart is not markedly enlarged but on the oblique film we have a tortuosity, enlargement, and thickening.

*Slide 35:* This would have been entirely missed on the anterior exposure and is a localized dilatation running out in front of the descending aorta, and on the oblique view you can see the peach-shaped bulging of the aneurysmal sac.

*Slide 36:* This is a foreign body in the left bronchus. It is very hard to distinguish in the anterior view. This is not a bullet, but the steel tip of a lead pencil swallowed some years ago by an energetic young woman, and it was recovered by Chevalier Jackson.

*Slide 37:* This is not an enlarged heart but an abscess in the mediastinum proven by recovering pus with the needle.

*Slide 38:* This is a far-advanced tuberculosis with a pericardial effusion. The patient is extremely short of breath, and patients do not walk into your office extremely short of breath from tuberculosis. In endeavoring to remove this fluid the patient coughed, the tube became disconnected, and we got air in the pericardium (indicating). You can see the pericardium and the advanced tuberculosis. After removing the air and the fluid we practically brought the pericardium down on the heart and we see a normal size heart.

I thank you very much. (Prolonged applause.)

## MISCELLANY

### THE ABRAMS METHOD OF DIAGNOSIS AND TREATMENT REPUGNANT TO SCIENTIFIC MEDICINE

We publish at the request of the Aberdeen (S. D.) District Medical Society and we do so gladly the charges made against Dr. Sigmond Rosenthal, of Aberdeen, leading to his expulsion from the Society, giving also a copy of the paper upon which the Board of Censors based their findings.

We cannot but recognize the ability of Dr. Rosenthal so to mingle truths, half truths, and falsehoods as apparently to justify conclusions that will deceive the ordinary reader; and we must not overlook the ability of the Board of Censors to present a case that fully justifies their action in expelling from their society a man who by teaching and practice is a menace to the health and the lives of his patients and to the health of the community.

### A COPY OF THE CHARGES

Aberdeen, S. D., June 14, 1924.

Dr. W. A. Bates,  
Secretary of the Aberdeen District Medical Society,  
Aberdeen, South Dakota.  
Dear Doctor:

I herewith prefer charges of gross misconduct against Dr. Sigmond Rosenthal, of Aberdeen, South Dakota, and submit the enclosed copy of the *Aberdeen Evening News* of June 13, 1924, page 4, under the title "Letters to The Editor, Heredity in Chicago Murder Case," as evidence.

I ask that these charges be taken up through the proper channels as prescribed by the by-laws of our Society.

Yours very truly,  
(Signed) R. D. ALWAY, M.D.

### A COPY OF THE FINDINGS OF THE BOARD OF CENSORS

Honorable Members of Aberdeen District Medical Society:

In pursuance of your orders to examine the charges of gross misconduct preferred against our member Dr. Sigmond Rosenthal, your Board of Censors has the following to report:

Dr. Sigmond Rosenthal wrote and caused to be published in the *Aberdeen News* June 13, 1924, an article, in which he gives credence to the teachings of one Dr. Abrams, of San Francisco, and suggests the use of Electronic Medicine. He is also reported to be using this form of treatment, making of it a specialty in his practice.

Your Board of Censors took up a study of electronic medicine as promulgated by Dr. Albert Abrams and find it void of any scientific bases and an absolutely fraudulent and incompetent method of treatment.

We base our opinion:

On the *American Medical Journal* October 27, 1923, and December 8, 1923.

On a report of the San Francisco Medical Society.

Upon the study and personal tests made by Dr. Paul H. de Kruif, well-known laboratory specialist of New York, who published his verdict in the *Hearst International*.

On the examination and study made by a commission of men appointed by the *Scientific American Magazine*, who studied the entire teachings of Dr. Abrams from a physiological, biological and physics standpoint, and their studies extending over an entire year and their verdict as found in the September issue of the *Scientific American*.

Upon exposure made in the *Dearborn Independent*, the Ford Special Newspaper.

The above proof of the incompetency of this method of diagnosis and treatment seems to us sufficient.

Your board also condemns the writing and printing of such an article in the daily papers, which was, to all intents and purposes, only an advertising scheme.

It is an unfair and unscrupulous form of competition, and contrary to medical ethics.

For the above-mentioned reasons we the undersigned Board of Censors therefor recommend that Dr. Sigmond Rosenthal be expelled from membership in this Society.



We also recommend that the Society take steps, through the State Board of Medical Examiners, to have his license revoked as well as the revoking of the license of all practitioners who employ this method of diagnosis and treatment in the State of South Dakota.

We base this recommendation on the precedent set by a resolution which was introduced before the Ohio State Board, which reads as follows:

WHEREAS, Numerous complaints are being received concerning the use of the Abrams treatment in the diagnosis and treatment of disease, and

WHEREAS, the investigations of scientific men in the medical and allied professions agree that the diagnosis and treatment of disease by the so-called Abrams' method or electronic medicine is wholly unscientific and without value, therefore, be it

RESOLVED, That the Ohio State Medical Board is of the opinion that its employment in diagnosis and treatment of disease should be suppressed.

Further, the Secretary of the State Medical Board is directed to cite all practitioners who continue to employ this method in the diagnosis and treatment of disease to show cause why their certificates to practice in the State of Ohio should not be revoked.

Respectfully yours,

(Signed) J. O. F. KRAUSHAAR, M.D.  
T. P. RANNEY, M.D.,  
J. F. ADAMS, M.D.

#### A COPY OF DR. ROSENTHAL'S ARTICLE

From *Aberdeen Evening News*, Friday, June 13, 1924.

##### Heredity in Chicago Murder Case

Editor of the *The News*:—Last week the Chicago papers stated that the sins of the children fell upon the parents. I differ with them, and so does the Bible. Leopold and Loeb, the two degenerates, who killed Robert Franks, on May 21, and who confessed their crime, are brilliant students, or post-graduate students, of the University of Chicago. They planned their deed for months, as evidence given by themselves. Now I am not going to defend or incriminate these two murderers, but I want to give the cause of their crime, as it appears to my mind as an M. D. and electronic physician, and to suggest treatment for the prevention of crime, and so in turn relieve the burden of the taxpayers, who are taxed for the upkeep of all institutions for the unfit millions in the army of the insane, epileptic, feeble-minded, high-grade morons and criminals.

A duty and a privilege presents themselves to preachers, teachers, lawyers and to the medical profession, and especially to those physicians who practice the electronic reactions of Abrams, to pay greater attention to the children of to-day, who will make up the citizenship of tomorrow. Too little attention has been paid to moulding the bodies and training the minds of these coming men and women.

The training of a child's mind is dependent, to a great extent, upon a clean and healthy body, and the perfection or imperfection of his body depends upon the kind of stock from which he springs, and his very early physical training and attention.

The ancient law-giver announced that the sins of the fathers should be visited upon the children unto the third and fourth generations, and Dr. Abrams

explains this by saying: "We are all omnibuses in which our ancestors ride."

Both in the United States and abroad, the rigid examinations given to recruits and conscripts during the World War told a tale of weakness and of lack that is too well known to need elaboration here.

Statistics show that the present generation as a whole, presents a lamentable deficiency in physical makeup and in a great many instances, a dwarfing of mental capacity. This is due both to inherited weakness and to lack of proper training in early childhood.

At this time we wish to deal only with the inherited weakness, or, as Dr. Albert Abrams calls this toxic condition, "diminished resistance." This refers to a toxic element or poison found in the general blood stream, which lowers the resistance of an individual and makes him more or less susceptible to the many diseased conditions to which the human race is heir.

This toxic condition may also have an effect upon the different organs and glands, which have to do with the normal functioning power of the body, and modify their activity—either lessening or increasing it—to such an extent that health is impaired.

Dr. Abrams has said, and clinical observation has proved, that this toxic condition of the blood, or "diminished resistance," is "the father of disease." In other words, most diseased conditions are dependent upon this basic soil for their growth and development.

Observation has shown that cancer, tuberculosis and many other pathologic conditions do not develop unless this general blood condition is present. Examination of thousands of individuals indicates that this "diminished resistance" prevails in all of us. The only reason that we do not all show physical or mental evidence of it, is that some of us have enough vitality within us to hold the "diminished resistance" in abeyance of that in some individuals the amount present is very slight.

Of what importance are these facts in relation to future generations? In us who are older—who have partly served our purpose in life, and whose bodies have become accustomed to function to a fair degree in the presence of this toxic condition, it is not so vitally important that immediate steps be taken to rid the body of "diminished resistance," unless it be to insure the purity of our offspring or in the event of some specific disease which is dependent upon it for growth.

But the children of today present an entirely different problem and everything that can be done to insure their well-being in every respect should be done, for they will have to bear the burdens of state tomorrow. Many a child born today, is already headed for the penitentiary, for the home for the demented, or for long years of sickness just because of his tainted (not sainted) forebears a generation or two back. The child has this toxic condition in his blood stream. It weakens certain parts of the body, which do not develop normally, and thus the path is partially marked out for his future life.

Of course the child would have had a clean start if this "diminished resistance" could have been cleaned out of his forebears, but since that was not done, the best we can do is to eliminate these resistance lowering toxins from the child's body and

give him as good a chance as possible to develop into a normal, healthy individual, in spite of his inheritance.

If this basic soil be removed in infancy or early childhood, it will tend to prevent further weakening of body resistance and function, and to a great extent remove the possibility of contracting the many ills and diseases of early childhood. If this cleaning-out process were made universal, the next generation or two would show such marked improvement in physical and mental well-being, that our poor-houses, prisons and insane asylums would be almost vacant.

A murderer has a diseased brain and a thief has a twisted sense of right or wrong. In both instances that toxic condition, "diminished resistance," is one of the exciting agencies producing the thought behind the act.

Dr. Albert Abrams spent twenty years of hard work, study, experimentation and research, in perfecting a method that would detect, identify and measure diseased conditions of the body and then clean them out. Although his method of diagnosis and treatment is only in its infancy, great good has already been done, and many people are now well who would otherwise have been gone and forgotten.

One of the greatest possibilities offered by the Abrams discoveries and methods, is through the work we can do today with our children, making it possible for them to develop into healthy and happy men and women.

Further in dealing with the great army of delinquents and criminals it has been often suggested that crime is the direct result of some structural malformation. Now comes the idea that crime may be a result of malignant energy that may be detected and eliminated by the electronic reactions of Abrams. Judge Ben Lindsey of Denver has often made the statement that the delinquent boy is not bad but sick. Dr. George Starr White says regarding criminals: "Some day humans will learn that criminals are not cured by means of prisons, whippings, or even by murdering them. There is good in every so-called criminal. You and I might have been just as bad as the worst of criminals had we been born with the bodily defects that all criminals have. The only way to cure criminals is to cure the body."

My suggestion is to clean the body by eliminating the toxic condition which produces the diminished resistance and I advocate that societies be formed for the racial purification of children, by means of the electronic reactions of Abrams.

Science, fortunately, upon which we must ever depend for progress, is coming to our aid. The new knowledge of heredity and electrons has burst upon the world like a new sun out of heaven. Upon this knowledge is based the young science of Electronic Medicine which promises as great, if not greater, practical good to man than has come through medicine and sanitation from the discovery of germs. That no limit can be set to the good that may come through electronic medicine or E. R. A., is the opinion expressed by hundreds of physicians, who practice the electronic reactions of Abrams.

Sigmond Rosenthal, Ph.L., D.D.S., M.D., C.M.

## THE SUPREME COURT OF SOUTH DAKOTA AND THE MEDICAL MEN OF THAT STATE

At the request of Dr. R. D. Alway, Secretary of the South Dakota State Medical Association, and of other physicians in the state we gladly publish the following unbiased and documentary information concerning a phase of the political situation in that state which affects physicians:

The election of three judges of the Supreme Court on the non-political judicial ballot in South Dakota is of peculiar interest this year to surgeons and physicians. Three of the persons incumbents, Judges Polley, Gates, and Sherwood, are candidates for re-election, and are opposed by gentlemen whose judicial caliber is at least unknown.

The present Supreme Court handed down two decisions that are particularly worthy of note on the part of surgeons. Hanson vs. Harris was decided August 31, 1921, and in the opinion, Judge Polley, among other things, said that in that action, which was for damages for malpractice in the treatment of an injured knee, the evidence was insufficient to show neglect or want of care and

"That the mere fact that plaintiff's limb was not restored to its natural condition and usefulness, does not prove nor even imply that the doctor was negligent or unskillful. Physicians and surgeons are not to be held responsible for results, but only for the kind of service rendered by them. The undisputed evidence shows that the purpose of taking an x-ray of the injury is to ascertain facts that cannot be ascertained in any other way. . . . But it was wholly unnecessary for that purpose, because the defendant had ascertained that there was no broken bone. . . . We fail to find any facts that warrant the conclusion that any other course of treatment known to the medical profession would have produced better results. . . . The plaintiff has suffered much pain, and no doubt will continue to suffer great pain and much inconvenience from the condition of his leg. No doubt his condition appealed strongly to the sympathies of the jury, as it certainly does to the sympathies of this Court, *but this does not justify the verdict against the defendant.* The evidence did not justify a verdict against the defendant, and the judgment and order are reversed."

In the later case of Warwick vs. Bliss, the Court held to this same rule, and also announced the rule that a physician is not required to exercise the highest degree of skill and diligence possible in the treatment of an injury or disease, unless he has by special contract agreed to do so. In the absence of such special contract, he is only required to exercise such reasonable and ordinary skill and diligence as are ordinarily possessed and exercised by the average of the members of the profession in good standing in similar localities, and in the same general line of practice, regard being had to the state of medical science at the time. And the Court held that there was no evidence at all from which carelessness or negligence of the doctor could be inferred, and that the Circuit Court should have directed a verdict for the defendant.



These cases are positive proofs of the fidelity with which the present members of the Supreme Court construe the law as it is, regardless of their sympathies in a given case. The soundness of the decisions is unquestioned. It should be the duty of every physician in the state to manifest an interest in the re-election of the present judges. The importance of the office is too great to take any chance on experiments with unknown quantities.

#### For Sale

Tycos sphygmomanometer, Victor centrifuge, Wither record cabinet, Paragon table. Address 2168 Carroll Ave., St. Paul.

#### Drug Stock for Sale

Minnesota physician desires to dispose at once of his nearly new drug stock at half cost price. Address 156, care of this office.

#### Position Wanted

By a thoroughly competent woman as industrial nurse or in a clinic or as office attendant with a group of physicians in Minneapolis.

#### Locum Tenens or Large Country Practice Wanted

I desire a position to do substitute work or will take over a country practice if the field is a large one. Address 157, care of this office.

#### X-Ray Machine for Sale

One large Snook X-Ray Machine complete with Coolidge tube, stand, and screen. In first-class working condition. For sale at a bargain. Address 115, care of this office.

#### Technician Desires Position

A technician who has had six months experience in a hospital laboratory seeks work. Can also do office and stenographic work. Moderate salary will be accepted. Address 146, care of this office.

#### Office Position Wanted

By a young woman who has been two and a half years in a physician's office. A fair typist who can take medical reports in long-hand. Best of references. Wages, moderate. Address 151, care of this office.

#### Good South Dakota Location Open

In richest farming section of state. Good roads; fine people; competition 20, 25, 30, and 35 miles. Will introduce successor. Small investment to pay for drugs and office equipment. Address 152, care of this office.

#### Laboratory and X-Ray Technician Wants Position

A graduate from the laboratories of the Minneapolis General Hospital desires a position. Can do all general laboratory work, including Wassermanns, etc., and x-ray work; and is a good typist. Address 155, care of this office.

#### Position Wanted by X-Ray and General Laboratory Technician

A graduate of the Minneapolis Hospital Laboratory in x-ray and general laboratory work, with experience in St. Mary's and other hospitals. Best of references. Address 153, care of this office.

#### Assistant Wanted

As soon as possible, to do general work in clinic. New modern hospital and well-equipped office. Will pay \$200 per month and all expenses pertaining to practice. Address Kittson County Clinic, Hallock, Minnesota.

#### Technician Wants Position

A young woman with three years experience wants a temporary or permanent position. Can do all routine work and blood chemistry. Now taking basal metabolism and Wassermanns in a city laboratory. Address 140, care of this office.

#### Wanted, An X-Ray and Laboratory Nurse

Position open in new modern Tuberculosis Institution in Northern Minnesota; excellent opportunity for one thoroughly familiar with x-ray technique and general laboratory methods, also to assist in heliotherapy. Complete maintenance at hospital. State salary desired, references, and when available. Address 156, care of this office.

#### Physician's Office Furniture, Etc., For Sale

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford, N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

#### Operating Table and Instrument Case for Sale

I have for sale one large-sized steel and plate-glass instrument case, suitable for either physician's office or hospital operating room; has combination lock and is enameled white; a bargain. Also one Allison office operating table, golden oak, in fair condition. Write or call upon Dr. Hugh J. Tunstead, 1126 Metropolitan Bank Bldg., Minneapolis.

#### Physician Wanted

Reliable physician in a Northern Minnesota town of 375 inhabitants, about 3,000 people in community. Physician's territory much larger, including five villages and districts. Nearest competition 22 miles North, 47 West, 45 South, none East. Excellent dairying and farming district. Good office and residence quarters available. Good man can run receipts to \$5,000 a year in six months time. Village and townships health officer business guaranteed to resident physician, which amounts to about \$900 per year. Applicant must furnish references. Address 154, care of this office.

#### Practice for Sale in South Eastern Minnesota

Practice free to buyer of my drug-store. A complete stock of drugs, all that goes with a well-conducted drug-store. It will invoice \$3,500 to \$4,000. Town of 280, another inland town 250 within four and one-half miles which is ten miles from any competition in practice and drug-store. Competition 10, 20, 18 and 15. Only doctor and drug-store in town. Rich German community; all is cash. A German who is a Catholic or Lutheran and who does his own surgery will make ten thousand per year. Three churches, high school, a fine bank, creamery, and all kinds of business; modern town with 24-hour electric service, water works, etc. Don't write if you have no money. Address 149, care of this office.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**  
The Official Journal of the  
North Dakota and South Dakota State Medical Associations

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

A. J. McCANNEL, M.D. - - - Minot, N. D.

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

#39-840 Lumber Exchange - - - Minneapolis, Minn.

NOVEMBER 1, 1924

## "WHAT'S THE MATTER WITH COUNTY SOCIETIES?"

This is the subject of a short editorial in the American Medical Association Bulletin for October, 1924, and although it has been written on many times there is no reason why our attention should not be again directed toward this subject. The principal complaint that we hear now from physicians is that there are too many medical societies. This, again, is an old heading, but it still stands out as truly as it has before; and in all large cities there are independent organizations, sometimes they are of the various specialties, and occasionally, as is the case in the larger cities, the younger men of the profession organize a society in which they feel more at home than they do in the old county society, and there is a good reason for this, perhaps, in that the young men feel that the older men who have been in attendance on the county society for many years have controlled it, as they believe, and the young man has but little chance for advancement or for office in the county organization. This is hardly the proper attitude to take. If the younger men would come in they could very soon control any medical society by voting in their own members, and there is no reason why they should not do so. In their various clubs or organizations of younger men they are in training and they can readily come into a larger society and acquire a substantial foothold. Then, too, although many of them are members of the larger societies, they feel that the dues are rather

high, but what medical organization can be run on a small membership fee? Perhaps, too, they feel that in the smaller groups they can develop greater social intercommunication and better human relationship among members of the profession. That is doubtless true, too, but that does not prevent them from taking an active part in the larger association which needs their support and their discussions and papers.

The older men and the younger men should unite cordially, and the relation between the two should be upon as firm and friendly a foundation as in the smaller and younger organization. One argument that has been advanced against the smaller medical groups is that they do not do so much as the larger county society. They are better equipped to take an active part in the work of the large society to get before the public, to be known as men advancing in medicine, and to do missionary work among their fellows, younger or older. The whole thing travels back to the large society and its management. Why do they not get out and attract the younger men to the meetings? It is lamentably true that in the greater organizations the attendance is less in numbers and the interest in the organization is lessened; hence we need fresh blood and new ideas to come in and stir us up. It is quite true that when an emergency arises all medical men get together in a county organization, but they do not get together often enough, and it should be the duty of the district councilor to exercise his advice and authority, perhaps, in amalgamating these organizations, be they great or small.

The same thing is true of the state organization. They have to contend with three or four sectional medical societies, and the result is that the members flock to these various meetings and receive thereby something that is full of youthful enthusiasm. For instance, in Minnesota there are nearly 1,900 members of the State Association, and yet the registration at the average state meeting is ridiculously small. At St. Cloud last month, when the State Association met there, there was a good representation from the Benton-Stearns County society and a fair representation from the membership outside. Of course the larger cities contribute mainly the numbers at the state meetings. Again there comes up the question of dues, and, if we stop to consider for a moment, the men who belong to many societies are paying more dues than they suspect. Would it not be better for them to concentrate their efforts on one greater organization and uphold it both financially and by their interest and attendance?



---

**DR. ARCHIBALD MACLAREN**

The Northwest lost a beloved member of the medical organization in the death of Dr. Archibald MacLaren, which occurred on October 12, 1924. His acquaintance was not only wide throughout the Northwest but very general, and he was particularly well known among the surgical associations of the United States.

Dr. MacLaren was a Minnesota man, having been born in Red Wing, in 1858. He graduated from Princeton University in 1880, and received his medical degree from the College of Physicians and Surgeons of Columbia University, New York. He was a surgeon of repute, and he was particularly well liked for his frankness and his unfailing honesty in his surgical work, whether in diagnoses or operations. He perhaps did as much for the Northwest in the way of surgery as any man we have ever known, due to the unfailing readiness with which he admitted his mistakes; usually the papers that he read before medical societies were of this type, and consequently he left behind him a trail of instruction and advice that is worth more than the rehearsing of cases successfully operated on. Doctors throughout the Northwest have remarked upon this, so that it is not a one-man opinion, and they all feel that in him they had a straightforward advisor, a man who knew what he was talking about, and a man who told them something every time they came in contact with him.

Dr. MacLaren came to St. Paul when he was ten years old, and after his graduation he was an interne in the New York Women's Hospital; probably this was the beginning of his work in gynecology, although he did not confine his surgery to the pelvis. His first professional association was formed in St. Paul, with Dr. Edward C. Spencer, in 1885. After the death of Dr. Spencer he became associated with Dr. C. A. Wheaton, and retained this association until 1896. In 1898 he joined Dr. Harry P. Ritchie and that association continued until his death; with them were associated Dr. Louis E. Daugherty and Dr. Harry Oerting.

Dr. MacLaren was sick for several months with an organic heart trouble, consequently his death was not unexpected although it occurred suddenly. He leaves a widow and three children. He was a member of the American College of Surgeons, the American Medical Association, and the American Surgical Association, and was president of the Minnesota State Medical Association, but was unable to preside at the meeting which was held in St. Cloud on October 8,

9, and 10. He was also Professor of Surgery in the University Hospital, at the University of Minnesota.

**DR. J. A. MONAHAN**

Dr. J. A. Monahan, died on Monday, October 13, at his home in Minneapolis after a three-months illness of a combination of arterial and cardiorenal disorders. He was fifty-seven years old at the time of his death. Born in Elmville, New Brunswick, Canada, he came to Minneapolis in 1887, and for a few years he was engaged in operating a drug-store. But he graduated in medicine, from Hamline University, in 1902, and had practiced here for twenty-two years. He leaves a widow and two daughters, also four brothers, one of whom, Dr. Robert Monahan, practices in Minneapolis. He belonged to the various medical organizations and was a member of the different clubs, and also of the Zurah Temple of the Mystic Shrine and a member of Phi Rho Sigma medical fraternity.

Dr. Monahan was the quiet type of man. He was always very sincere and cordial, but was not a man who was obtrusive in his acquaintance. He was on the surgical staff of St. Barnabas Hospital and of Asbury Hospital for many years.

**DR. FREDERICK LEE BECKLEY**

Since the above notices were written and as THE JOURNAL-LANCET is ready for the press, word reaches us of the death of Dr. F. L. Beckley, of St. Paul, which occurred on Thursday, October 23.

Dr. Beckley died at the age of fifty-three. He was a graduate of the University of Minnesota (College of Homeopathy), class '97, and had practiced in St. Paul since his graduation.

Dr. Beckley was treasurer of the Minnesota State Medical Association at the time of his death and had held the office for several years. He was a good business man, as well as a physician, and was an ardent golfer and lodge man. He was very highly esteemed by his associates in medicine.

---

**NEWS ITEMS**


---

Dr. O. D. McCartney has located at Carpio, N. D.

Dr. Hood, of Souris, Manitoba, has located at Lansford, N. D.

Dr. P. M. Reilly has moved from Mayville, to Fond du Lac, Wis.

Dr. G. S. Frogner has moved from Mayville, N. D., to Plaza, N. D.

Dr. J. H. Barrette has moved from Steele, N. D., to Neche, N. D.

Dr. Roy F. Raiter, of Cloquet, is spending a month in the clinics of New York City.

Dr. O. E. Nelson, a 1924 graduate of the Medical School of the U. of M., has located in Gaylord.

Dr. J. A. Myers, of Minneapolis, presented a paper before the Trudeau Society of Michigan at Ann Arbor last week.

Dr. C. R. Sanborn, who has been practicing in Bemidji for the past year or more, has returned to his practice in St. Paul.

Dr. F. L. Beckley, of St. Paul, died last week at the age of 53. Further notice of Dr. Beckley appears in our editorial columns.

Dr. W. M. Barnes resigned as health officer of Sioux Falls, S. D., on Sept. 1, and is devoting his entire time to private practice.

Dr. Homer Boehsinger has moved from Mountain Lake to Windom to join his brother, Dr. Harvey R. Boesinger in practice in Windom.

Dr. Robinson Bosworth, of the Minnesota Sanatorium Advisory Commission, asserts that the death rate from tuberculosis in Minnesota has decreased one-third since the State began to fight the disease.

Dr. R. P. Pearsall has been appointed health officer of Virginia to succeed Dr. C. W. Miller, who resigned because he is moving to Columbus, Ohio, to practice.

Dr. William O. McFall, a retired physician of Parshall, N. D., died the last of August at the age of 73. He graduated from Bellevue, New York, with the class of '79.

Dr. Clyde A. Undine, of Minneapolis, has returned from a trip through the New England States and Eastern Canada, where he visited hospitals in New York, Boston, and Montreal, Canada.

Dr. Benjamin Thane, of Barrett, has moved to Hankinson, N. D. Dr. Thane was associated with Dr. F. N. Powers at Barrett in hospital work. He is a graduate of the Medical School of the U. of M., class of '17.

Dr. Henry W. Gammell, of Madison, died last month at the age of 66. Dr. Gammell graduated from Northwestern in the class of '87, and began practice at once in Lac qui Parle County, where he continued in practice till his death.

The Northwestern Hospital, of Minneapolis, has been granted a building permit to erect a six-story addition to its present building, Chicago Ave. and 26th St. The cost of the new structure will be several hundred thousand dollars.

Dr. D. C. Lockhead, Field Secretary for the past two years of the Minnesota Public Health Association, has been appointed deputy health officer of the city of Rochester, working with Dr. Charles H. Mayo, the health officer of that city. He succeeds Dr. W. F. Bleifuss.

Dr. Walter J. Marcle, of Minneapolis, and Dr. E. B. Dougherty, of St. Paul, have been appointed, as tuberculosis experts, members of the committee that will select a site for the Government hospital for the tuberculosis veterans in the Tenth District.

At the annual meeting of the St. Louis County (Duluth) Medical Society, the following officers were elected for the current year: President, Dr. F. H. Magney, Duluth; first vice-president, Dr. M. M. Hursch, Grand Rapids; second vice-president, Dr. D. J. Paradine, Duluth; secretary-treasurer, Dr. H. C. Anderson, Duluth.

The Sheyenne (S. D.) Valley Medical Society, at its October meeting, agreed strictly to enforce the rulings of its Credit Association formed in the Spring of the year. The work of other mutual credit associations formed by the physicians of North Dakota during the past year or so, has proved satisfactory to both physicians and their patients.

The Wright County Medical Society held its annual meeting last month and elected the following officers: President, Dr. O. J. R. Freed, Co-kato; vice-president, Dr. A. E. Phillips, Delano; secretary, Dr. J. J. Catlin, Buffalo; delegate, Dr. A. E. Phillips. The Society has enrolled every physician in Wright County, and thus becomes a 100 per cent society.

Dr. J. G. Parsons, of Sioux Falls, S. D., who has been prominent in medical circles in that state for a good many years, has joined the Attix Clinic of Lewiston, Montana. He will be missed by the profession of South Dakota. An appreciation of his services appears in the report of the Sioux Falls Medical Society, on another page.



Dr. Parsons graduated from the Medical School of the U. of M., class of '98.

#### SEVENTH DISTRICT MEDICAL SOCIETY OF SOUTH DAKOTA

The regular meeting of the Sioux Falls (7th) District Medical Society was held October 14, 1924, at the Carpenter Hotel. Dinner was served at 6:30 followed by the business session and later by the essayists of the evening.

The secretary was instructed to investigate, and take such action as he deemed necessary, regarding the renewals of the expired subscriptions to *Hygeia*. Last year the Society had this magazine sent to five schools and the public library.

Authority was granted to pay the express charges on a public-health film secured from the Metropolitan Life Insurance Co. for exhibition before the Parent-Teachers Associations of the public schools.

The secretary was instructed to answer a questionnaire sent by the Chicago Gynecological Society relative to the operation of the Shepard-Towner bill.

Dr. J. G. Parsons announced to the Society his intended departure at an early date to be associated in group practice at Lewiston, Montana. Dr. Parsons expressed his pleasure at having been a member and eulogized the medical profession, especially that of the Middle West and of Sioux Falls.

Dr. G. G. Cottam responded for the Society and briefly reviewed Dr. Parsons' valuable work in the local and State societies, and a resolution of regret at Dr. Parsons departure and appreciation of his very valuable services to the medical profession was adopted by a rising vote.

Dr. Goldie Zimmerman read a paper on "Bronchopneumonia in Children" which was freely discussed.

In the absence of Dr. T. E. Jones, Dr. T. J. Billion presented a brief paper on "Chronic Diarrheas Due to Pancreatic Deficiency," with a report of cases. The general discussion was opened by Dr. G. A. Stevens.

Twenty-seven members including all the officers were present.

D. A. GREGORY, M.D., Secretary.

#### NORTHWESTERN NORTH DAKOTA MEDICAL SOCIETY

The October meeting of the Northwestern North Dakota Medical Society was held Friday

evening October 16 in the form of a dinner meeting at the Leland Hotel, Minot.

Dr. C. N. Callander, of Fargo, read a paper on "Bone Tumors," illustrated by lantern slides.

Dr. H. M. Erenfelt, of Minot, read a paper on "The Etiology and Pathology of Leucorrhea," which was followed by a paper on "Diagnosis and Treatment of Leucorrhea" by Dr. E. M. Ransom. Dr. H. E. Landes, of Kenmare, opened the discussion of these papers, and a good general discussion followed.

About twenty-five doctors were present. This was the first meeting after the vacation period and one of the best meetings ever held in the District. Monthly meetings will be held through the fall, winter, and spring months.

A. J. McCANNEL, M.D.

#### MADISON (SOUTH DAKOTA) DISTRICT MEDICAL SOCIETY

At the October meeting (October 8) of the Madison District Medical Society, the following program was presented:

- "A New Method of Performing the Schick Test, Involving the Cutaneous Application of Undiluted Toxin," C. E. Kassowitz, M.D., Watertown, S. D.
- "Physiotherapy in General, and Diathermy in Particular," B. T. Green, M.D., Brookings, S.D.
- "Gas Gangrene Infection Following Extensive Injury to Muscles Tissue," D. S. Baughman, M.D., Madison, S. D.

J. R. WESTABY, Secretary

#### PROGRAM OF THE FOURTH ANNUAL MITCHELL (SOUTH DAKOTA) CLINIC

##### Tuesday, November 11

- "Iodine in the Treatment of Goitre," Wm. A. Plummer, M.D., Rochester, Minn.
- "The Newer Concepts of Acute Osteomyelitis," A. C. Stokes, M.D., Omaha, Nebr.
- "Valuable Measures in the Practice of Obstetrics," R. T. La Vake, M.D., Minneapolis, Minn.
- "The Use of Glucose in Traumatic Shock and Post-operative Conditions," B. F. Lounsbury, M.D., Chicago, Ill.

##### Wednesday, November 12

- "Essential Hypertension and Arterio-sclerosis," S. Marx White, M.D., Minneapolis, Minn.
- "External Fixation and Application of Splints in Fracture Work," A. E. Wilcox, M.D., Minneapolis, Minn.
- "Congenital Hypertrophy of the Pylorus," H. H. McClanahan, M.D., Omaha, Nebr.
- "The Fifth Nerve and Its Reflexes," Albert H. Andrews, M.D., Chicago, Ill.
- "Venous Angioma of the Face and Its Treatment," Frederick H. Roost, M.D., Sioux City, Ia.

(See For Sale Items Page 560)

# THE JOURNAL- LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 22

MINNEAPOLIS, NOVEMBER 15, 1924

Per Copy, 10c  
A Year, \$2.00

## THE MINNESOTA GENERAL HOSPITALS

THE LAYING OF THE CORNER-STONES OF THE TODD MEMORIAL AND THE CANCER INSTITUTE

BY R. O. BEARD, M.D.

UNIVERSITY OF MINNESOTA.

It is still news to many in the medical profession and even to medical alumni of Minnesota that the University Hospitals are known, under the recently enacted law, as the Minnesota General Hospitals.

Traditions obtain even in so young an institution and tradition clings tenaciously to the names of men and things. Cyrus Northrop and Frank Fairchild Wesbrook are names to conjure with, although the men who answered to them have gone into the Great Beyond; and that not only because they were great men and of large vision, but because, being great and seeing far, they were loved by associates and students alike. And so it is with the familiar things, as well as the favored folk, of a great institution; so it is that the University Hospitals stand for something by way of sentiment in the minds of many of us. They are a part of the Medical School we have loved and labored for so long; and we do not easily abandon the names of things to which we are personally attached.

The extension of the University Hospitals was a slogan to which Dean Wesbrook marched and he would have gone on marching to it, had he remained at Minnesota, until that extension was achieved, even though the soul of him had been straightened in its accomplishment.

Its realization has been long delayed, but the now proceeding erection of two new hospital units has put a renewed heart of hope into the

faculty. The laying of the corner-stones of these two buildings on October 1st was an event of large significance in the history of the School, because it represents the first step in hospital extension and, more importantly still, because the rearing of them, in large part the result of private beneficence, will give an impetus to the devotion of great gifts toward the development of scientific medicine in Minnesota.

This was the key-note of the address of President Coffman in opening the exercises of the corner-stone laying. He recited the story of the giving of the Elliot Memorial Hospital and the site on which it stands; of the contribution to medical education and research of the Mayo Foundation fund; of the recent gifts for the Todd Memorial Clinic and the Cancer Institute; of the million dollars or more devoted by Mr. William Henry Eustis to the treatment and training of the crippled and deformed children of the State; and he summed it all up into one far-reaching conclusion.

"Private capital is engaged in a great co-operative enterprise with the State in providing for the study of human diseases and the training of doctors and nurses. This is as it should be. There is no type of education more expensive. It requires expensive laboratories and hospitals.

"Where we have such co-operation as exists at Minnesota, if it may be continued, it should be possible for us to provide facilities, inviting con-



ditions for work and a staff of such skill as would be second to none throughout the world. To do this other gifts must be made in the future, for our hospital system is not nearly complete. There must be endowment for beds, for special research projects, for the purchase of library and laboratory materials, and for the dissemination of knowledge relating to the cure and treatment of disease. If we keep constantly before us the justification for the existence of these buildings, I believe this dream may ultimately be realized."

President Coffman put the emphasis upon the real values for which these buildings stand. "We assemble," he added, "upon an occasion of this kind not primarily to do honor to those who have given so generously. They will receive their reward in more subtle and finer ways. We assemble not to glorify bricks and mortar. The worth of an institution is found in the spirit which characterizes and influences its workers. It is this spirit of service which I hope may be magnified and glorified with the passing years. Those who give will soon pass on, but the things for which this institution stands, as the institution itself, will remain."

Dr. Arthur Dean Bevan, Chairman of the Council on Medical Education, made the principal address of the day. He sketched the history of the development of medical education in America and paid tribute to the schools and teachers of earlier days. "It has become rather the fashion," he said, "to belittle the earlier American medical schools and the medical teachers who taught in them. Surely this is not warranted, for the fact is that medicine was not as yet a science. These old masters taught well what was then known. They struggled under a heavy load. Many things which are clear to the first year medical student of today were dark, unsolved problems to them. They were in keeping with the knowledge of their day.

"The truth is that in forty years a revolution has occurred. A new and great science, the science of medicine, has been born. This change has been so rapid and so great that even those of us who are in active work can reach back and touch the dark days when medicine was not a science."

Dr. Bevan outlined the opportunity of the teacher of today, the necessity of a reorganization of medical teaching and the value of a well organized profession of medicine. As one of the agencies of this organization, he discussed the valuable service of the Council on Medical Edu-

cation and Hospitals in the uplift of the teaching institutions of medicine in America.

With particular reference to medical education maintained by the State Universities, he said:

"Medicine has become one of the great functions of modern civilization. It has become one of the great functions of the State. The time has come when the science and art of medicine can properly claim the support of the State for medical education, medical research, public health work, and the medical care of the dependents of the State. In the interest of the people themselves, we can demand adequate state support for medicine, so that medicine in turn can properly perform its great function to the state and give to the people the great possibilities offered by preventive medicine, intelligent medical practice, and research.

"Medicine, like education (in general), has become one of the great functions of the State. When this conception has been generally adopted and put into practice, what will it mean? It will mean a state health service with well-equipped laboratories and well-trained men in every part of the state giving to the people the benefits of modern preventive medicine. It will mean a board of medical licensure with authority to demand thorough training from the candidates who desire to practice medicine in the state and with power to protect the people against medical ignorance and inefficiency. It will mean a strong medical department of the State University, situated if possible in the largest center of population in the state, provided with adequate plant and necessary funds and in medical control of the great state and municipal hospitals, eye and ear infirmaries, insane asylums and special hospitals, such as maternity hospitals, orthopedic and children's hospitals, so that the educational functions of these hospitals can be properly developed and performed.

"This plan would secure for the patients of these institutions the highest type of medical service. It would secure for medical and nursing students the best possible training and it would result in medical research which would add to our existing knowledge.

"The best investment that any state can make is money given for the adequate support of education and of medicine. There will always remain the great privilege and great opportunity for private endowment to assist medical education, medical research and medical charities. It is interesting to note that the great endowments of Rockefeller and Carnegie, founded for the

general benefit of mankind, have turned more and more to medicine as the surest way of accomplishing their fundamental purpose.

"The taking over of the medical school by the university has brought to the presidents and trustees of our universities a large and complex problem.

"Medicine has become such an important part of modern life that it touches every man, woman and child in the community. When the university develops a medical department it at once assumes, through that medical department, a function which brings it for the first time in its history into the every-day life of the people. The medical school cannot be developed along the narrower lines of the other departments of the university,—the departments of science, theology, law, etc. The medical school drags the university into the practical every-day life of the people through its hospital, dispensaries and public health work, its maternities, its infant welfare work, its care of the blind and the deaf, and the crippled children, and its nurses' training schools, and not only with the patients of these institutions but with the people who manage and support them and also with the medical profession. This marriage of the university and of medicine can be productive of great good if both parties to the contract learn to do their part. The development of a medical school along the best lines will be a fine thing for the university. It will have a broadening effect. It will make the University a part of the community in a way that it has never been before.

"The universities of the country have much to learn about the proper development and conduct of medical schools. They are as a whole eager and willing to learn. Unfortunately, so far, they have often been badly advised and, as a whole, they do not yet understand many of the practical problems involved. The fundamental error which most of them have made has been the conception that they could develop a medical department as they could a department of chemistry or physics; that they could develop the medical school within the university with university plants and university men, as they have done with other departments. Of course, such a conception is not only wrong but absurd. The medical school can not be developed as a part of the university. It must be developed as a living part of the community.

"You here in Minnesota are in a most fortunate position to develop a great medical school upon sound lines. You have but one medical school in the state and that is fortunately the medical

department of the state university. If you develop the medical school along right lines you will have the support of the entire profession and of all the people of your entire state. You can place your medical school in close co-operation with the public health service of your state, counties and cities. You can co-operate with the hospitals of the state and with those of Minneapolis and St. Paul and with the great state institutions for the care of the state's dependents."

In concluding his address, Dr. Bevan, addressing the President, the Regents and the Faculty, said:

"I desire to congratulate you and the people of Minnesota upon the splendid development that is going on in your medical school. I desire especially to congratulate you upon the fine buildings which you are beginning to erect to-day. They will be centers of medical teaching and medical research of the best type. I have had the pleasure of inspecting your medical school and I believe that you have the opportunity of developing here one of the great medical schools of the world. Build your school on such broad lines that it will belong not to the university alone, but to all the people of your state. Conduct it so that it will not only train general practitioners of medicine, specialists and research men, but so that it will secure for the people of your state the best of preventive and curative medicine. Seek to master the great unsolved problems of the cause, the prevention and the cure of disease, so that from your laboratories and clinics there will come great medical truths that will prove of service to all mankind."

After the laying of the corner-stone of the Cancer Institute by Dr. Arthur C. Strachauer, Chief of the Department of Surgery, the gathering was addressed by Dr. Edward L. Tuohy, of Duluth, representing the Alumni of the School.

His address is entitled "Dr. Frank C. Todd and the Development of Medical Education in the University of Minnesota", and its opening pages, which follow, are a fitting tribute to the man whose memorial is rising upon the University campus.

"Frank Chisholm Todd was born at Minneapolis, October 15, 1869. In May, 1892, he was graduated from the Medical School of the University of Minnesota with the degrees of D.D.S. and M.D. His teaching connections with his Alma Mater began with the rank of Instructor in Ophthalmology and Otolaryngology, in the fall of 1897; he became clinical professor in the following year, a full professor in 1903, and he assumed the chair as Director of his Department in 1908, a position which he continued to hold until the time of his death.



"These categorical statements dealing with the remarkably useful and stimulating life of this great Minnesota alumnus will be found in many other places. It is only necessary at this time and place to introduce them again in order to focus our attention for a few moments upon a few of the outstanding situations and developments which have led up to this most happy occasion and to the consummation of an idea and a gift which proclaim the manner of man he was, to those of you who did not have the opportunity to know Frank Todd, better than any mere words may do although they fall from the lips of those of us who admired him as a teacher and loved him as a man.

"You already know the story of how this memorial has come about:

"After Colonel Todd's most untimely death Mrs. Todd found among his private papers notes fully outlining the idea of a great Clinic in Ophthalmology and Oto-Laryngology at the University of Minnesota.

"In giving today to the great leader and teacher the greatest praise and honor of which we are capable, let us not forget to bestow a full portion upon his wife. It is commonplace to hear financial experts state that a legacy considered large two decades ago is now held to be meagre. There are few physicians indeed who become wealthy in the ordinary acceptance of that term. Most, if thrifty, save from their professional earnings by cautious and careful living; those who attempt to gain opulence by speculation help to swell the enormous numbers of our cult who, as their life progresses, share with their families far more of penury than of affluence. Therefore, when Mrs. Todd offered to the Medical School Committee the notes above referred to and set aside from her modest estate the sum of twenty thousand dollars it represented a very considerable part of the savings of a teacher in medicine, as well as a practitioner; a man who died relatively young, when only forty-nine years old, and one who had therefore a relatively short professional life in which to save.

"It was apparent that Frank Todd wanted to put his own chosen specialty upon a proper basis; he wanted its professional standing and its skill to be fully commensurate with that found in the other branches of clinical medicine; he wanted it to meet up with the very heavy responsibilities arising from the essentially intricate and devastating disease processes likely to rob people of three of their highly-prized special senses. The value of hearing and sight is so overwhelmingly apparent as to put into the background our appreciation of the sense of smell. To the responsibility for the preservation of these special senses has come to be added the great burden of preventing the wide series of diseases and tissue changes incident to primary infection in the mouth and throat and accessory sinuses. Frank Todd saw the grave need of providing hospital beds for cases of eye, ear, nose and throat diseases; of building up and housing a dispensary clinic in these branches; of gathering into one institute all the necessary appliances, not only to treat these cases but to teach others how to do so. He wanted this service to be open to all, and ever it was his zeal as a teacher to organize this material so as to fully train and equip students to become

good general practitioners and, later, to develop them along his special line by the method of the three-year Fellowship, which he was among the very first to introduce.

"Contagion usually conjured up in our minds the transmission of something unkindly or contaminating. However, here is an instance in which we note a benevolent contrast: Mrs. Todd's "infection" was caught both by Mrs. Gale and by Mrs. Mapes, and when the contagion had run its course forty-five thousand dollars were available. It had then accumulated such strength as to infect the Board of Regents, and when they responded to this friendly inoculation the sum available had advanced to approximately one hundred and seventy-five thousand dollars. We pause here in our usual conflict with transmissible infection to ask for a truce; to offer the kindly hope that for Minnesota and for similar institutions this benign contagion will become more and more general. There are many indications and signs which lead one to feel that this is not a forlorn hope. Neither is it an unnecessary burden to place upon private beneficence. This medical school has come into its present stature and position by a happy set of circumstances. It is the only medical school in our great state; it is an integral part of our great University. Our State and University need with the State's population (and that of adjacent territories engaging with us in the ordinary exchanges and commerce of life) a first-class medical school. We need not rely upon our own verdict to proclaim that we have just such an institution; we are fortunate in being able to rely upon the judgment of experts who know; we were among the very first of the American medical colleges to be placed in classification "A." In the matter of entrance requirements and the early development of the fundamental branches none has excelled us. We have succeeded in attracting to Minnesota a class of students of whom this institution may be justly proud. Much evidence might be brought to bear to affirm and prove this statement, but only one fact is necessary. The graduates of Minnesota have been welcomed as internes to the very best hospitals in the whole United States; and let it be said further that they have not overstayed their welcome; these institutions wish others to come from the same school, with the same training and ideals. We may assume, in fact, that this medical school has a dominant position; that it is backed by a great and wealthy state; that it has proved beyond question its capacity and worthiness. You may well ask, then, why, as inspirational hygienists, we should seek that an epidemic of giving should hit our alumni and, in turn, be communicated to their patients and patrons, with the hope and understanding that as a complication of the convalescence further endowments, memorials and foundations, connected with this school, shall be established. We should,—and for one good reason among others. A most interesting hour may be spent in looking over the announcements and catalogues of the leading medical institutions of our own country and Canada. Take a look, for example, at a statement from Johns-Hopkins University and read of, "The Harriet Lane Home for Invalid Children;" the "DeLamar Fund," with its emphasis upon a study of "The Conservation of Health by Proper Food and Diet"; note the names of Mary Elizabeth Garrett and James Buchanan Brady; consider what

the Rockefeller family and Mr. Phipps have done at Hopkins, as well as elsewhere, in the development of the different phases of medical science. Coming close home, consider, for a moment, the Sprague Memorial, managed co-ordinately and in connection with the great Rush Medical College, now a part of the University of Chicago; then the McCormick Institute, and now the great Billings Memorial Hospital. One might proceed from one institution of note to another and outline from each a series of most noteworthy projects that would make us all feel that Minnesota's position and apparent wealth and tax-payers' backing are yet not sufficient, by aid of these factors alone, to keep this school in the front rank.

The groaning taxpayers of our land have well come to a stand where it will no longer be popular, even with legislators, to spend what appears to be the other fellow's money. The state, at present, seems to be about loaded up with the immediate burden of past inexpediency and the present ill-ordered and decipered expediency. No form of taxation has even been or ever will be devised which abstracts from the wealthy that which the ordinary crowd of folks think they do not need and would be better off without. The great masses of wealth that have already been returned for the common good by men and women with great accumulations are proof enough of the essential fairness of most men, who, when the time is ripe for it, are willing to segregate from active industry greater or lesser portions of their fortunes and set them at the disposal of properly guided and directed institutions of learning, to be put to work thereafter for the people who helped originally to create the wealth. That which can never be done by drastic legal action is already being done and made a commonplace in America by judicious persuasion on the part of those really interested in education, and with the help of those leaders of our day and time who see in one province or another desirable fields for research and investigation.

It is our profound belief that this medical school is a safe institution to trust with such funds. As the opportunity is given from time to time to contribute to relief, education and research, it is to be hoped that the example shown here today, leading up to the founding of this Memorial and the Cancer Institute, will be followed by others. And as these various leads are developed, Education and Research, the training of students, must be the University's province.

The writer entered the University of Minnesota as a student in the academic department in 1898. He was given degrees of B.A. and M.D. in the years 1902 and 1905 respectively. This is not an autobiography on his part, but he is here today to represent the alumni of his college and, with you, to pay homage to, and possibly add a little from the personal viewpoint to our memory of a remarkably keen man.

It was given to the writer in his earlier years after graduation to have an unusually close association and friendship with the late Dr. Frank F. Westbrook, long an associate and admirer of Dr. Frank Todd, and later the Dean of our Medical School during a period when it broke from its early moorings, merged with Hamline, and became, almost unheralded, a national factor in medical education.

Frank Todd held the very closest attention of his students by his sincerity and kindness rather than by his eloquence as a speaker or a lecturer. It must be said in all truthfulness that he did not combine that portliness of form or power of voice that so often confuses an audience and is held to indicate a "bristling personality." The first impression he made upon you was not the best; but he grew upon you as time went on and his true worth came out. Some years after the writer's student days it was something of a surprise to hear Dean Westbrook say that without question Frank Todd was the greatest organizer and executive that the Minnesota medical faculty had developed. And Dean Westbrook was a remarkable judge of men. The war proved that he was absolutely correct. Those who were permitted to see our erstwhile teacher and Professor of Eye, Ear, Nose and Throat Diseases as a Lieutenant-Colonel in command of the Base Hospital at Camp Dodge realized at once that this physician-soldier, with none of the military stamp either upon his countenance or in his gait, was able to bring that immense unwieldy jumble of barracks into a state of vitality and competency that brought expressions of delight from all his old friends and merited commendation from his superiors at Washington. Remember that this was at a time when severe epidemics hit our farmer boys gathering at this encampment and made the organization of the work to meet these emergencies a most formidable task. Yet Colonel Todd met this issue with the same serene, dispassionate, logical and judicious mentality that formerly met the lesser issues of his teaching position upon the University's Administrative Board. At a time when blame was passed hither and thither for everything, not a word was heard but of praise and admiration for the Hospital Commandant. He was, in a word, a man of profound executive capacity. It was this power that he wielded for our University. These faculties enabled him to create orderliness. This institution will profit for all time thereby, because he did not choose to direct all his powers to his own personal use.

Many of you here today are attending the University; some of you are also students. However, few of you, when urged to look about and observe the very substantial buildings already giving so fine an impression of what this medical group ultimately is to develop into, have need to be told that this grouping and position is not just a matter of chance. Upon this vital point the writer must again bring personal testimony to show the considerable share of credit that is due to Frank Todd for what you see before you here today. You of today cannot appreciate what effort it required to push the campus out here to the river. The "medics" should never claim too much credit for this achievement; but few will ever fail to give them their full due, because the events concerned with the Elliot bequest and the University Hospitals and the acquisition of part of this land by funds raised through private subscription are all too recent to slip the recollection of many. Memory calls us back to a fateful day when the medical faculty, loaded with arguments, appeared in the office of "Prexy" Northrop, to explain why they should be supported in the movement for the Greater Campus and why they should have the coveted river bank. By special request, a committee of medical alumni was present; the writer had



the pleasure of being a member of that committee. It was a tense hour and our appeal earnest. We spoke, not for ourselves, but for our Alma Mater. Frank Todd was there in the anteroom to supply the alumni committee with the facts and fighting spirit. To be sure, there were other zealous faculty members present, but the memory of that tall, thin, tired-appearing man, looking into the future needs of our school with a foresight and vision that virtually said, "Our plea is right; it must come to pass," is the figure that has not faded.

His apparent fatigue is mentioned here because there can be no doubt that his most unfortunate and early demise followed upon an infection, overwhelming him with its virulence, at a time when he was thoroughly tired. He had gone on to Chicago for a meeting from Camp Dodge. He had worked beyond his strength for months. The same calm, unhesitating manner, that had inspired all who came in touch with him here in Minnesota, had gone on unceasingly and constantly serving his country as it had his school. He gave to both an unswerving devotion—it is a mistake to call it love, because that much abused emotion can often be so absurdly passive. This man actually burned out his life in the service of his country and there was no motive back of it whatever except the zeal of a true man."

Dr. Tuohy took up at this point in his address the problems in medical education facing the University of Minnesota today. As questions of major import he inquired:

"How big should the University ultimately become? How many medical students should the college enroll? How many graduate students should be provided for? At what point of hospital development should the regents pause before further increasing the legislative burden of maintenance? In what degree should this maintenance load be lifted by asking the patients treated here to pay their own way? How far should the University go in the treatment of the sick among our own taxpayers and how may administrative rules differentiate between the worthy and the unworthy who seek aid? The disturbing question of providing sufficient beds, and thereby clinical experience for "whole time teachers," presses for a harmonious solution.

"None of these questions can be answered hurriedly, if judiciously, neither can immediate expediency determine the wisest policy.

"The alumni of this school now total 1,639. The school has had a very rapid growth. The session of 1913-14 had an enrolment of 183; that of 1923-24, 514. Since 1913-14, 123 Fellows have taken graduate work here at the University; the number of Fellows registering at the Mayo Foundation at Rochester is 450.

"As to the size of the University, it must soon become apparent that "the right to a college education" cannot be guaranteed to anybody. And lest anyone should feel badly thereat, please recall that the "New Decalogue of Science" has recently placed in everybody's hands, in a most readable form, certain solemn truths long known and understood, but too little considered, and an obviously pessimistic motto, which, nevertheless, educators themselves should emblazon over the portals of every college center in the world: "Intelligence is that birthright that

enables its possessor to get along without an education; education is that acquisition which enables its possessor to live comfortably without intelligence." The mob of unintelligent and the few gifted are battling at your doors. Your difficulties in selection are stupendous; your opportunities, with proper choice, are without limit. You chose 105 freshmen this year from 190 applicants.

"Too much time has been spent in all of our educational work in elevating the capacity and qualifications of the poorest students; it is time that some of the practices of continental universities, which stimulate and push forward the alert, should be put into operation. Here at this University must be developed the atmosphere and the spirit that will keep the "livest wires" that can be found suitably engaged and happily at work. To accomplish this, turmoil and uncertainty, apprehension and worry, must be banished.

"This is a "cornerstone laying." Something uncanny surrounds the proceedings, with its entombment of certain documents. As we do this we visualize, in our absolute confidence in reinforced concrete, that nothing short of a sixth inroad of a glacial drift, in another fifty thousand years, may obliterate these buildings and do to this terrain what some three to five preceding glacial periods did in the distant past. However, that which is hidden and sealed in this box is no more hidden from most of us than that which is freely accessible from the treasure houses of the past and contained in yonder beautiful Library Building. The treasure is hidden there because for the most part we have not the intelligence nor the inclination to go and dig it out and make it a part of our lives. American students are not readers; they exult overmuch in the glories and triumphs of the day, and in the annihilation of space! We attempt to settle too few problems by the application of natural laws and too many by administrative control or legislative experiment.

"We have recently celebrated "Constitution Day." We were told rightly, by eloquent jurists, that our American constitution stands between us and chaos. It is "the instrument which protects the people against their fool selves;" and yet, Great Britain has existed grandly and gloriously up to date without a constitution at all. Precedent and stability have been its safeguards. Indeed, our own constitution is not a discovery but is in good part an incorporation of principles fought and bled for in various quarters of the world.

Frank Todd's whole life was a fight for principle. In laying this cornerstone we are putting his principles into tangible form. They become a part of our own unwritten constitution; a pledge of stability and justice unending; the truest expression of a spirit that never faltered in the living and shall continue to beckon on so long as grateful students here perfect their talents, so long as suffering patients here receive their ministrations.

At the close of Dr. Tuohy's address, the cornerstone of the Todd Memorial was laid by Dr. William R. Murray, the present Chief of the Department which Dr. Todd so ably directed.

NOTE: In the course of his address Dr. Tuohy referred to the large volume of medical research in progress at the University and suggested that the following synopsis of it be published for the benefit of the many who are interested in the progress and service of the school.

Statement of Research Work in Progress in the Several Departments of the Medical School, University of Minnesota:

**Anatomy.** The Growth of Children—A series of studies. The Effects of Inanition and Malnutrition upon Growth and Structure. (A volume of some 750 pages on this subject is in press.) The Glands of Internal Secretion.

**Physiology.** Studies in the Glycogenic Function of the Liver. Iodine Determination in Food Stuffs. Factors in Irritability of Peripheral Nerves. Studies in Coagulation of Blood. Studies in Muscle Tonus. Distribution of Water in the Tissues.

**Pharmacology.** The Excretion of Mercurochrome, etc., into Inflammatory Tissues. Factors causing Edema. Physiology of the Kidney as shown by Excretion of Dyes. Effect of Excitement on Sleep-producing Drugs. Effect of Insulin on Alcohol Intoxication. Studies of Synthetic Local Anesthetics. Studies of Adrenalin-like Substances. Effect of Caffein on Acetanilid Poisoning.

**Pathology.** Investigations into Causes of Bright's

Disease. Studies in Endocarditis. Diseases of Fetal Life and Early Infancy.

**Bacteriology.** Mechanism of Agglutination Phenomena. Blood Tests in Tuberculosis. The Laws Governing the Growth of Bacteria. The Relation of Surface Tension to Bacterial Growth.

**Medicine.** Studies in the Causation of Certain Skin Diseases. Causation of Nephritis. Arterial Hypertension. Management of Juvenile Tuberculosis. Studies in Delinquency in Early States of Mental Disease.

**Surgery.** Technique of Blood Transfusion. Etiology of Pancreatitis. Problems in the Surgery of the Stomach. Studies in Harelip and Cleft Palate. Effects of Open Pneumo-Thorax on Vital Capacity.

**Obstetrics and Gynecology.** Studies in Placental Infarctions. The Vital Capacity of Pregnancy. Development of the Female Pelvis from Birth to Maturity. Anatomic and Physiologic Studies of Ectopic Gestation.

**Pediatrics.** Studies in the Carbohydrate Metabolism of Infants and Children. Determination of Urea in Saliva. The Physiology of Fatigue in Children.

## A PRELIMINARY REPORT ON THE TREATMENT OF TUBERCULOUS CONDITIONS OF THE ABDOMEN BY MEANS OF OXYPERITONEUM AND PNEUMOPERITONEUM\*

By E. W. HAYES, M.D.

MONROVIA, CALIFORNIA

The treatment of peritoneal tuberculosis is usually spoken of as medical and surgical; but Scrimgers<sup>1</sup> says, "This is an unfortunate distinction because it is distinctly felt that the treatment is alternative." He adds, further, that approximately 50 per cent of these cases recover if they are treated along the lines now so generally carried out in the case of pulmonary tuberculosis,—that is rest, food, fresh air, and light, natural and artificial. In the other 50 per cent the mortality can be greatly reduced by assisting this medical care by surgical measures. For many years the main surgical procedure in these cases has been to open the abdomen, drain out the fluid, expose the abdominal contents to the air of the operating-room for a few minutes, and then close the incision without drainage. In most cases where there is not a general miliary involvement, where the process is not too acute, or too far advanced this procedure is followed by a definite improvement in the local and general condition of the patient. In a large por-

portion of cases treated in this manner the fluid does not re-collect after the first operation, while others are cured only after the abdomen has been opened two or three times. Obviously this method of treatment is used in the exudative types. Various modifications of this procedure have been tried. Some men have used antiseptic or cleansing solutions to wash out the abdomen after the original fluid was evacuated. Certain men, especially abroad, have exposed the abdomen to the direct sun's rays for varying periods of time up to forty-five minutes. The clinical results obtained by either of these latter procedures have not been very encouraging.

Oxygen in a continuous stream has been used for flushing out the abdominal cavity after the ascitic fluid has been drained through a surgical incision. Others have inflated the abdomen with air or oxygen just before the incision was closed. Both these procedures have been reported as distinctly beneficial.

In the type of tuberculous peritonitis where the process is more or less localized as in the pelvis, in the appendix, or even in a considerable por-

\*Read at a clinic given before the combined meeting of the Los Angeles Trudeau Society and The Foothill Medical Society.



tion of the bowel, removal of these areas is usually followed by good results.

Bainbridge,<sup>2</sup> in 1909, reported the cure of tuberculous ulceration of the intestine, tuberculous peritonitis, and other infective processes by oxygen injections. In a later article<sup>3</sup> he cites the fact that as early as 1799 Beddoes employed oxygen for the cure of ulcers of a mauvaise nature; that in 1761 Maniere and Gimbernath used injections of sterilized air in the treatment of hydrocele; and that Marcane and De Marquay, in 1865, announced the cure by oxygen injection of senile gangrene. Since Bainbridge's first report, especially during the last three or four years there have been a limited number of reports abroad and in the United States of beneficial results secured by the introduction of air or oxygen into the abdomen in tuberculous peritonitis of the exudative type. There have also been a few isolated reports of the injection of oxygen having very favorable results in other forms of extrapulmonary tuberculosis where closed cavities were involved. In view of these almost universally favorable reports it is somewhat surprising that this procedure has not found a more general use.

Meeker,<sup>4</sup> in 1912, reported a case of tuberculous peritonitis with ascites treated by operation followed by the inflation of the abdomen with oxygen. There was almost immediate local and general improvement which went on to a rapid recovery.

In September, 1912, Goodwin<sup>5</sup> stated that "During the past four years I have injected oxygen into the peritoneal cavity after abdominal operations, and I must say the results in selected cases have been very encouraging." He says "The cases in which I have found it most beneficial are (1) after removal of large tumors to overcome negative abdominal pressure; (2) in tuberculous peritonitis; (3) in certain cases to prevent the formation of adhesions; (4) in general septic peritonitis." He inserted a trocar and canula into the abdominal cavity on the opposite side to his incision. He then withdrew the trocar and closed the incision. A rubber tube was then attached to the canula, and the oxygen was passed from a cylinder into the abdominal cavity. Goodwin says "The amount of oxygen did not seem to matter," but he always injected enough to obliterate the liver dulness. He was of the opinion that if the abdominal cavity was completely filled it was not entirely absorbed in less than two weeks. However, it is pretty well agreed among the other men who have done this work that the oxygen is completely absorbed in

two or three days. Our experience has been that the oxygen disappeared from the abdomen in the shorter period, even when large amounts were used. Goodwin states that since he has used this treatment in the ascitic form of tuberculous peritonitis he had never seen the condition return.

Weil and Loileseur, of France, December 16, 1921, reported their experience with the injection of filtered air into the abdomen in six cases of tuberculous peritonitis with ascites. The inflations were made after the aspiration of the ascitic fluid. There were three cures. In these the number of injections varied from one to five. The amount of air injected at any one time varied from one-half to two liters. The fluid, as well as the symptoms, disappeared quickly in these cases. The fourth case was in a measure unsuccessful. Three inflations were made. While the abdominal symptoms showed some improvement the patient died of generalized tuberculosis. The fifth and sixth cases showed no beneficial results. (The inflations were made, two in one and four in the other case.) The return of ascitic fluid in these cases did not seem to be prevented in any way by the injection of the air. In December, 1921, Sargo and Fritz, of Berlin, reported very encouraging results through the injection of air following the removal of the fluid in exudative types of tuberculous peritonitis. They also called attention to the fact that some of their colleagues had used this method of treatment in a few cases with good results.

In September, 1920, Rost<sup>6</sup> reported the results of the treatment of eight cases of tuberculous infections in closed cavities by inflation with oxygen, with remarkable results. There were four cases of psoas abscess, three of tuberculosis of the knee, and one of exudative tuberculous peritonitis. The details of this latter case are interesting. To quote from Rost; "It was an advanced case with a certain amount of matting of the intestine and large masses of tuberculous material in the mesentery. The patient was very emaciated, was running a hectic temperature, and suffered a great deal of pain and discomfort. He was operated on by me before I had hit upon the oxygen method, and his abdominal cavity had been well irrigated with saline fourteen days previous to using the inflation method." Rost states that he introduced a Potain trocar through a small incision and inflated the abdomen with oxygen until it was as tympanitic as a drum. Two hours later the patient felt relieved and had no discomfort. That night the temperature became normal and remained so. The patient felt

so well he left his bed and went for a walk in the garden. Distension disappeared in three days. On examination two weeks later many of the abdominal masses had disappeared. The patient had gained considerable in weight and was at his home attending to his business. To quote again from Rost; "A month after, this man saw me passing his house and ran after me. I could hardly recognize him—he had grown so stout and looked so well. The lumps in the abdomen had very much diminished though they had not altogether disappeared." In 1921 in another article Rost stated that this man received two more inflations at his home and that the improvement continued. In his later article Rost reports very excellent results in a number of other cases of exudative tuberculous peritonitis.

Stein, in March, 1922, reports two cases of tuberculous peritonitis with ascites treated by oxygen inflation with good results. Davis,<sup>10</sup> in 1923, reports good results in two similar cases treated with oxygen. Laney, in April, 1923, stated that he used abdominal inflations with oxygen in one case of far-advanced pulmonary tuberculosis complicated by intestinal ulceration. The bowel movements were reduced from twenty to twenty-five a day to one or two a day. There was also an improvement in the appetite, and this patient was also able to eat and handle food, such as meat, which he had not been able to eat for months. From 600 to 1,200 c.c. of oxygen were injected at a time with the pneumothorax outfit, and it was necessary to repeat the injections every two or three weeks to prevent the recurrence of symptoms. Bainbridge, in April, 1923, stated; "In more than two hundred and fifty laparotomies I have used oxygen in the peritoneal cavity with uniformly favorable results. The method has been to balloon the abdomen with pure gas (94.3 per cent to 97 per cent oxygen) at a temperature of from 90° to 100° F., close the wound, and allow the tissues to absorb the oxygen."

While this paper is being prepared Mattich<sup>13</sup> reports a case of exudative peritonitis treated by oxygen with very good results. Gilbert<sup>14</sup> at the same time reports two cases of tuberculous ascites treated by the injection of sterilized filtered air. Both made prompt recoveries.

We first used oxygen inflation of the abdomen therapeutically in July, 1923. I was called to see a girl, aged 15, the third day after the onset of acute abdominal pain. During this period the afternoon temperature had been 103°. She gave a history of having been treated two years previously for tracheobronchial adenitis, from which

she apparently had fully recovered. At the time I saw her she was exceptionally well developed, strong muscularly, and weighed 140 pounds. During the six weeks previous to this acute illness she stated that while she had had no very definite symptoms she had not felt quite as well as usual. Pain accompanied by moderate soreness was more or less general over the abdomen. The signs and symptoms seemed slightly more marked over the right lower abdomen. She had vomited once. Three years before she had had a definite pain and tenderness lasting for a short period in the lower right quadrant. A surgeon called in consultation advised the opening of the abdomen. The white blood count was only 12,000. A differential count was not made. The abdomen was opened that evening, May 29, under novocain anesthesia. The peritoneal surfaces, both parietal and visceral, were thickly covered with small tubercles. The intestinal wall, as a whole, was inflamed. There was no fluid and no adhesions, except a few fibrous bands attaching the distal portion of the appendix over in the left quadrant. The appendix was five and one-half inches long, uniformly enlarged to twice its diameter, but, other than sharing in the general inflammation, it was not acutely diseased. The appendix was removed and the abdominal contents exposed in a general way to the air and the abdomen closed. Following the operation the patient was given every advantage of the general care of tuberculosis, including daily exposure to the Alpine sun lamp. For a period of two weeks there was a gradual improvement evidenced by relief of pain and soreness in the abdomen, improvement in the appetite and digestion, and a lowering of the temperature by two to three degrees. At the end of that period there was rather an abrupt increase in temperature, from 103° to 104°; pulse, 120; and a return of other symptoms. Her condition continued this way for five weeks. Her appetite became less and less, and her bowels were moved with the greatest effort. She was seen by a number of consultants, but she finally reached a stage where she had lost forty pounds, and it was almost impossible to move her bowels. She vomited everything, even water, as fast as it was taken. The abdomen at this time was only moderately tender. Pain was not a prominent symptom, there was no evidence of fluid, and no very marked distension. At the end of about thirty-six hours of these more acute symptoms and after her parents had come to be with her at the end, we injected 350 c.c. of oxygen into the abdominal cavity, using the ordinary pneumothorax



apparatus. The effect was almost immediate. There was no more vomiting. The bowels moved either naturally or with a mild laxative, and within forty-eight hours her appetite which had been gone for weeks returned. Her temperature on the sixth day after the first injection reached  $101^{\circ}$  as the highest point, and on the fifteenth day after the first injection the highest point was  $100^{\circ}$ ; the twenty-first day the highest point was  $99^{\circ}$ . There was a corresponding reduction in pulse rate. Since that time improvement has steadily continued, although for two months after the last injection the temperature oscillated from normal to  $99^{\circ}$  or slightly above, and the pulse from 80 to 90. She now looks and feels perfectly well and weighs 145 pounds. She is still under careful supervision and is being treated by heliotherapy.

The injections were as follows:

July 25, 1923, 350 c.c.-end reading pos. 3 min. water  
 Aug. 7, 1923, 400 c.c.-end reading pos. 3 min. water  
 Aug. 21, 1923, 200 c.c.-end reading pos. 3 min. water  
 Sept. 4, 1923, 250 c.c.-end reading pos. 3 min. water

I wish especially to call attention to the fact that this was a non-exudative case of tuberculous peritonitis. So far the reports of the treatment of tuberculous peritonitis have had to do with the ascitic form. Bainbridge, in his earlier report, called especial attention to this, stating that the fibrous and ulcerative forms were but temporarily benefited. However, the impression gained from reading the report of Rost's work is that some of his cases were of the non-exudative type.

The second case in which we used this method of treatment was a young colored woman in the Los Angeles General Hospital. She was practically *in extremis* when first seen. She had an advanced active pulmonary tuberculosis. Her abdomen was greatly distended with fluid causing marked distress, 2,500 c.c. of straw-colored liquid were withdrawn and 1,500 c.c. of oxygen injected. She felt somewhat relieved the first forty-eight hours. As the oxygen became absorbed she went into shock, from which she did not recover. Unfortunately, we did not see her during this time.

The third case was a patient in the Los Angeles General Hospital. Her general condition was fairly good. A laparotomy two months previously had demonstrated a non-exudative type of tuberculous peritonitis. 300 c.c. of oxygen were injected into the abdominal cavity. At the end of the next week the patient had left the hospital and could not be located. The interne stated

that she appeared to have been considerably benefited.

Three cases in our Clinic of advanced progressive lung involvement with evidence of extensive tuberculosis of the bowel have been treated by oxygen inflation.

In the first case the bowel involvement appeared to be of the ulcerative type. There was severe abdominal pain and diarrhea which could not be controlled by diet and medication, including calcium chloride intravenously. Oxygen inflation of the abdomen was carried out as follows:

Sept. 10, 1923, 200 end reading pos. 4 mm. of water  
 Sept. 18, 1923, 150 end reading pos. 3 mm. of water  
 Oct. 2, 1923, 300 end reading pos. 4 mm. of water  
 Oct. 26, 1923, 300 end reading pos. 3 mm. of water  
 Nov. 20, 1923, 450 end reading pos.  $1\frac{1}{2}$  mm. of water

Following the first two or three injections there was considerable abdominal pain and distress, which disappeared in a few hours. Following the last two injections there was very little distress, and the amount of gas injected was as great or greater with a lower manometer reading. Evidently there was a disappearance of adhesions. At no time was there any oscillation corresponding to the movements of the diaphragm. During the period covered by these injections there was a marked alleviation of her abdominal symptoms with relief from diarrhea. The temperature was lower, and she felt better generally. The lung condition, however, continued to progress. Owing to circumstances she was compelled to return to her home, so that treatment could not be continued. Her one regret was that she was not going to have these injections.

In the other two cases the bowel involvement appeared to be more of the stenotic hypertrophic type. The pain and distress in the abdomen seemed to be the result of partial obstruction. The first of these two cases received oxygen inflation of the abdomen as follows:

Aug. 3, 1923, 300 c.c.-end reading pos. 3 mm. of water  
 Aug. 20, 1923, 200 c.c.-end reading pos. 3 mm. of water  
 Aug. 31, 1923, 250 c.c.-end reading pos. 3 mm. of water  
 Sept. 21, 1923, 200 c.c.-end reading pos. 5 mm. of water

This patient had a definite partial obstruction and other than a general stimulation which lasted for two to three days there was no apparent benefit. He was extremely sick with a pneumothorax on one side. A breaking down of the other lung caused a fatal termination a few weeks after the last abdominal inflation.

The second of these cases received oxygen inflation as follows:

Oct. 25, 1923, 250c.c.-end reading pos.  $3\frac{1}{2}$  mm. of water  
 Nov. 5, 1923, 350c.c.-end reading pos. 3 mm. of water  
 Nov. 13, 1923, 900 c.c.-end pos. 2 to pos. 3 mm. of water

Outside of a general stimulation which lasted a few days and some improvement in the appetite there were no noticeable effects. Owing to the progression of the lung condition the treatments were discontinued. The use of oxygen in this type of case perhaps has very little benefit outside the psychic effect. At that it may be worth while as Archibald says in regard to operating on these cases: "It changes hopelessness into hope," and in doing that adds to the comfort and well being of the patient for a while at least, and the oxygen inflation is certainly a much simpler procedure than a laparotomy.

Another case in our Clinic still under treatment is a young woman with the history of an arrested lesion in both upper lobes of four or five years standing. About eight months before the beginning of the oxygen treatment we removed her appendix which had a tuberculous abscess in its distal half. The operation was done under novocain anesthesia, and at the time of the operation there was no evidence of pathology anywhere else in the abdominal cavity. Her history conveys the impression that her general resistance to tuberculosis is low. During the past four or five years she has been conscientious in her efforts to regain her health, but has not been able to get in a position where she is able to endure the ordinary routine of life for more than a short period at a time. After the removal of her appendix she was treated with rest and heliotherapy, apparently making a good recovery. At the end of three months she felt so well she went to work as a practical nurse. The work was not especially heavy. She rested two hours every afternoon. At the end of three months she came back to the office. She had lost about fifteen pounds. There was some distension and general tenderness in the abdomen but no evidence of fluid. There was a continuous dull pain in the epigastrium accompanied by nausea. Her lungs showed no change. The diagnosis of tuberculous peritonitis was made. She was placed under the general treatment for tuberculosis, and oxygen inflation of the abdomen was instituted. Injections have been given as follows:

Nov. 2, 1923,	350c.c. oxygen-end read. pos. $4\frac{1}{2}$ cm. water
Nov. 12, 1923,	350c.c. oxygen-end read. pos. 3 cm. water
Nov. 19, 1923,	450c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Nov. 26, 1923,	500c.c. oxygen-end read. pos. 2 to pos. 4 cm. water
Dec. 7, 1923,	500c.c. oxygen-end read. pos. $\frac{1}{2}$ to pos. 2 cm. water
Dec. 17, 1923,	600c.c. oxygen-end read. pos. 2 to pos. $2\frac{1}{2}$ cm. water
Jan. 2, 1924,	800c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Jan. 11, 1924,	1,050c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Jan. 17, 1924,	1,100c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Jan. 24, 1924,	1,200c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Jan. 31, 1924,	900c.c. oxygen-end read. pos. 3 to pos. 4 cm. water
Feb. 7, 1924,	1,100c.c. air-end read. pos. 4 to pos. 5 cm. water

Feb. 15, 1924, 800c.c. ox. Initial read. pos.  $1\frac{1}{2}$  to pos.  $2\frac{1}{2}$  cm. water  
 Feb. 15, 1924, 800c.c. oxygen-end read. pos.  $3\frac{1}{2}$  to pos.  $4\frac{1}{2}$  cm. water

At the present time the patient has a slight distress in the epigastrium, but the pain and nausea have disappeared. Her appetite and digestion are markedly improved. She has gained some weight, and the abdomen on physical examination appears normal.

From the outset the oxygen injections appeared to relieve the pain and nausea and general discomfort in the abdomen. The later injections have been given at intervals of one week because when they were given at longer intervals there was a tendency for the pain and nausea to return between injections.

Following the injections the patient has what she calls "gas pains," which disappear at the end of two or three days, and at the end of a week there is no evidence of pressure in the abdomen. On February 7 it will be noted that 1,100 c.c. of filtered air were injected. The gas pains were more marked at this time and continued practically throughout the week. At the time of the next injection, February 15, there was still considerable intra-abdominal pressure (the manometer reading being plus  $1\frac{1}{2}$  to plus  $2\frac{1}{2}$  cm. water.) It is evident, then, that the air is much more slowly absorbed and that while the abdominal pressure exists there is a feeling of "gas pains." This patient is very enthusiastic about the benefit she receives from these injections and says that as yet she would not want to give them up under any conditions.

The following case is reported by my associate Dr. Gleeten: "Miss E. K., a clerk, aged 27, born in Virginia. She came under our observation August 4, 1923, with a history of having had much abdominal discomfort and distension since February, at which time she had had a mild attack of "flu." She is weak, dedressed, and hysterical at times with a poor appetite and poor digestion. She gives a history of having missed a menstrual period, and her temperature for the last two weeks has been from  $99^{\circ}$  to  $101^{\circ}$  and her pulse in the neighborhood of 100. She also gives a history of having had an attack of colitis in July, but at present that seems to have quieted down.

"Examination of the chest shows lagging and some evidence of retraction of the left lung in the apical region with whispered voice, increased at both apices. There is granular breathing on the left, posteriorly, and bronchovesicular breathing at both apices, anteriorly. Her abdomen is much distended. Pelvic examination reveals no abnormality."



"After careful observation of this patient a diagnosis of tuberculosis of the peritoneum was made and oxyperitoneum instituted August 31, 1923, at which time 250 c.c. of oxygen were given, no fluid being withdrawn. On September 5 about 200 c.c. of dark-green cloudy fluid was aspirated from the peritoneal cavity following which 300 c.c. of oxygen were given. On September 12 it was evident, upon giving the oxyperitoneum, that adhesions were forming in the peritoneal cavity and 100 c.c. of oxygen were given in two different areas; September 17, 200 c.c. of oxygen were given intraperitoneally; on September 27, 250 c.c.; on September 29, 110 c.c.; on October 5, 200 c.c.; October 15, 200 c.c. The last three treatments were given at the Bishop Sanitarium, Pasadena, to which place the patient had been removed following the development of a psychosis.

"At the time of giving the last oxyperitoneum the patient's temperature was much lower, her general condition seemed to be improved, the abdominal distension was practically gone, and, aside from the depression incident to the psychosis, the patient's condition was much improved. I learned sometime ago that the patient has left the sanitarium and is now in good mental and physical condition.

Examination of the above patient made February 19, 1924, shows that she had no temperature, digestion good, has gained twenty pounds in weight since leaving the hospital, but still is about twenty pounds underweight. The abdominal distension is markedly lessened, but there are still a few irregular masses felt which are probably agglutinated mesentery."

In our cases we have not followed any particular method of preparation other than to have them empty the bladder just before the operation. Some men advocate light diet and a preliminary cleaning of the bowels preceding the injections.

The technic we have used has been exactly the same as we have used in pneumothorax. The asepsis of opening the abdomen is employed. The air chamber of the pneumothorax outfit is filled with oxygen just before the operation. A fairly large glass cylinder filled with sterile cotton is inserted on the tube between the oxygen chamber and the injecting needle. This is immersed in water heated to 100° F. A 1 per cent novocain solution containing 4 m.m. of adrenalin to the ounce is used to anesthetize the abdominal wall. Special precaution is taken to thoroughly infiltrate the skin and the peritoneum. A needle about the size of the ordinary hypodermic needle

and somewhat longer with a fairly blunt point is used to infiltrate the peritoneum. The anesthetic is injected ahead of the needle, which is inserted slowly and the needle is plunged directly through the peritoneum. We have used this method of infiltrating the abdominal wall in abdominal surgery for a number of years and saw it used frequently by other surgeons, but never witnessed any injury resulting from this procedure. We believe that, if this method is followed both in this operation and in pneumothorax resulting in a thorough anesthesia of the peritoneum and pleura, we shall hear much less of shock resulting from the puncture of these membranes.

In injecting the oxygen we always use the Salimen catheter which is the instrument used by the Germans and which is always used by us in our cases of initial pneumothorax. This instrument consists of a trocar one and one-half or two inches long and 14 gauge. The point is beveled off to be at an angle of about 45° and fairly blunt. On the proximal end is a disc about one-half inch in diameter which facilitates its being pressed into the tissues. A distinct sensation can be felt both when the trocar passes through the fascia and the peritoneum. The cannula of this instrument is a hollow needle about four inches long and 16 gauge. The proximal end is so made as to fit the ordinary rubber tubing, and the distal end is rounded or flat. In the side just above the point is a hole about 1.5 mm. wide and 3 or 4 mm. long. This cannula is all connected up before the trocar is inserted, and as soon as the trocar passes through the peritoneum, if there is no evidence of troublesome bleeding, the cannula is pushed gently into the peritoneal cavity. The trocar is then slipped out and the point of the cannula may then be felt through the abdominal wall at some distance from the point of insertion. We have inserted this trocar anywhere within a radius of two inches around the umbilicus with about the same result in each place. The favorite place seems to be about 1.5 inches to the left and about the same distance below the umbilicus. As Sante<sup>15</sup> points out: "The abdomen should be palpated over the site of the operation so as to detect any possible abdominal masses or abnormal pulsations. The left lower quadrant is chosen rather than any other because in this position there are no solid abdominal organs, the sigmoid and descending colon are situated far posteriorly and there is rarely any inflammatory process encountered such as is attendant upon appendical in-

voluments. Anomalous conditions of the bladder will be avoided by inserting the needle on the side of the midline and by emptying the bladder before introduction of the needle."

Sante feels that at this most favored site the structures to be contended with are the deep epigastric artery in the abdominal wall, the intestines and the mesenteric vessels within the abdomen. He believes that if the stylet is in place in the needle while it is being inserted that there is very little danger of puncturing the vessels.

Rost<sup>a</sup> thinks it advisable to open the abdomen in every new case to ascertain the conditions of the peritoneum and intestine. This would be the height of precaution, but we do not feel it to be a necessary procedure, especially where there is any great amount of fluid or even in the non-exudative cases unless there is reason to believe that there will be adhesions to the anterior wall.

When the needle is first inserted into the abdominal cavity, ordinarily the manometer reading is neutral, and there are no oscillations. The oxygen is run in under very gentle pressure. Any amount of resistance as felt in the bulb on the pneumothorax apparatus or as shown by the manometer means that the needle is not free in the abdominal cavity. Failure to have the needle entirely through the abdominal wall or contact with solid masses or adhesions or with the abdominal viscera might be responsible for this condition. Gentle moving of the needle about will sometimes cause this resistance to disappear. The manometer is read after the injection of each 50 or 100 c.c. of oxygen. The frequency of reading depends somewhat upon the resistance offered. Unless there are adhesions so as to form pockets the patient experiences very little sensation, even when as much as 1,000 or 1,200 c.c. of gas have been injected, other than a feeling of "being blown up." Sometimes they state that they feel gas pains. The oxygen seems to spread out slowly even in cases where there is reason to believe that there are no adhesions of consequence. The manometer will usually show 2-4 c.c. of water pressure with the first 200 or 300 c.c. As the amount of oxygen is increased to 1,200 c.c. or more in cases where adhesions are absent there is very little rise in pressure. Oscillations corresponding to the motion of the diaphragm do not usually occur until 300 c.c. or more of the oxygen have been injected. These oscillations are usually about equal to 1 cm. Of course they may have a greater latitude, depending upon the condition in the abdomen. Where there is evidence of any great amount of adhe-

sions, oscillations do not appear. Liver dullness, as a rule, begins to disappear after 200 or 300 c.c. have been injected. The amount of gas used in any particular case depends upon the condition present. In the ascitic cases where a considerable amount of fluid is withdrawn it is the opinion of the men who have been doing this work that the amount of gas used should equal about one-half the volume of the fluid aspirated. However, Bainbridge says; "In conditions of abdominal distension with ascitic fluid; in certain forms of tuberculous peritonitis; and in some cases where large tumors were removed the gas was introduced to the point of distension caused by the tumors or fluid." We believe that collapse after absorption of the oxygen is more likely to be avoided if smaller quantities of oxygen, perhaps from 300 to 500 c.c. are injected at first. We believe this to be especially true if the patients are very weak. The sensations of the patient and the degree of distension of the abdomen, as well as the readings of the manometer, are also guides as to the amount of gas to be used in each particular case.

The length of interval between refills has varied from one to two or three weeks or longer and has been determined primarily by the condition of the patient.

As is true in the operation of performing pneumothorax there are certain risks in inflating the abdominal cavity. I believe, however, that, if the operation is done with sufficient caution, these risks are not great enough to keep us from carrying out the procedure in suitable cases. Johnson<sup>16</sup> calls attention to the fact that Case<sup>17</sup> has collected records of four deaths; one of these was due to the introduction of oxygen into the spleen; one to peritonitis; and the other two patients became cyanotic and went into collapse almost immediately following the introduction of the needle and before any appreciable amount of gas had entered the peritoneal cavity. Unfortunately, in neither of these last two cases was autopsy permitted. Case made no attempt to explain the cause of death in these two cases. Johnson refers to the fact that Choyce states that in a small percentage of people the diaphragm is perforated in places. Under these conditions pneumothorax might result which would embarrass the heart. I do not believe, however, that this would be a plausible explanation of the cause of death in these two cases because of the small amount of gas introduced; nor do I believe this to be a serious danger in any case, especially if the gas is introduced slowly and a watch kept for the pos-



sibility of a resulting pneumothorax. Johnson feels that the best explanation of these deaths is that the injury of the needle to a sensitive peritoneum, such as is sometimes reported in the case of the pleura, caused reflex cardiac disturbance, which was fatal. As I have already stated, I feel that if the thoracic or abdominal wall is thoroughly anesthetized with novocain, the anesthetic being injected ahead of the needle and particular attention being paid as the peritoneum or pleura is approached that such reflex disturbance can be avoided.

Carelli<sup>17</sup> reports the inflation of the abdomen in 800 cases with only one mishap, and this did not prove fatal. He feels that the inconveniences and fatal results that have occurred have been due either to a failure to make a thorough clinical examination beforehand or to a faulty technique. He states that "the dangers which have been published, such as puncture of omental or mesenteric blood vessels, puncture of the abdominal viscera, and air embolism, may well be avoided by introducing the needle at the right point of the abdomen and waiting to see that blood does not flow through the needle; that peritonitis can be avoided by a knowledge of the most elementary rules of asepsis; that superficial emphysema is an accident which may occur but is not at all dangerous and is preventable by using the manometer in the injecting apparatus; that precipitation of cardiac failure can be avoided by examining the patient thoroughly clinically and performing the pneumoperitoneum only in cases where there are no cardiovascular troubles or insufficient myocardium." Carelli used a long thin platinum needle and injected as high as eight liters of oxygen in the patient's abdomen. This amount, however, was only injected for the purpose of taking röntgenograms. The patients were not allowed to make active movements with this amount of gas in the abdomen, but as soon as it was withdrawn they felt comfortable and were able to get down from the table unaided. Meeker calls attention to the danger of collapse of the patient when the oxygen is absorbed. This occurred in one of our patients, who, however, was *in extremis* when the operation was performed. We believe that, if the cases are selected and a small amount of oxygen injected at first, collapse would be less liable to occur.

Just how oxygen when introduced into closed cavities which are the seat of active tuberculosis exerts its beneficial effects is not clear. Attempts to explain its action has given rise to considerable speculation and some experimentation.

It is suggested that it aids mechanically in the exudative type by inhibiting the recollection of the exudate by separating those parts which are bound together by plastic lymph, by stimulating peristalsis, and by preventing the formation of adhesions. Some of the men who have been working along this line have expressed the opinion that the oxygen, *per se*, exerts a direct beneficial result both locally and constitutionally. Professor Sargo and his associate, Dr. Fritz, state that the efficiency of a gas injected into the peritoneal cavity is directly proportioned to the amount of irritation produced, provided naturally that the irritation is not too great. Bainbridge and his associate concluded from their experiment that oxygen was not an irritant to the peritoneum or abdominal viscera. Others feel that it is more irritating than air. Our own experience leads us to agree with the latter opinion. In some of our pneumothorax cases in which we had maintained the collapse for a considerable time with air we refilled with varying dilutions of oxygen and this usually without the knowledge of the patient. In practically every case there appeared increased irritation of the pleural space evidenced by an uncomfortable feeling and usually by the appearance of an effusion.

If the oxygen is the most irritating and this irritation is beneficial this would perhaps explain why those, particularly the French, who use air, apparently do not obtain such uniformly good results as have been reported by those men who use oxygen. Meeker<sup>4</sup> feels that it is chiefly to the active properties of oxygen that we must look for therapeutic possibilities, and since it has been proved that oxygen increases cell activity in all body tissues it is reasonable to assume that the oxygen hastens the production of new epithelium cells to cover over the denuded areas.

Meeker<sup>4</sup> also states that the bactericidal properties of oxygen when injected into the abdominal cavity may be a factor. In this connection Bainbridge<sup>3</sup> states that the bactericidal and antiseptic properties of oxygen are conceded. Bainbridge, Meeker and Gwathney<sup>3</sup> in their very interesting and extensive work on cats come to the following conclusion regarding the action of oxygen when injected into the abdominal cavity:

1. Oxygen is completely absorbed from within the abdominal cavity of cats in a maximum time of thirty-six hours; (a) the absorption took place more rapidly when the oxygen was warm; (b) the absorption not affected by pressure.
2. Oxygen is a slight respiratory stimulant.

3. Oxygen is a slight cardiac stimulant.
4. Oxygen has but little effect on blood pressure.
5. Oxygen tends to bring an animal out more quickly from deep anesthesia.
6. Oxygen hastens the recovery of an animal after discontinuance of anesthesia.
7. A pressure of more than 1,800 mm. of water may cause collapse (in a cat).
8. Oxygen tends to prevent the formation of adhesions. It does so more effectively than an inert gas.
9. Oxygen quickly changes a dark blood to scarlet in cases of anoxemia.
10. Oxygen stimulates intestinal peristalsis.
11. Oxygen is not an irritant to the peritoneum or abdominal viscera.

When air was used with the same technic, quantity, and pressure of gas as in the oxygen experiments—

1. The effect on the pulse and respiration was less marked.
2. The blood pressure showed essentially the same results.
3. The influence on the degree of anesthesia was practically nil.
4. The time of recovery from anesthetic after it was discontinued was twice as long as when oxygen was used.

An explanation for the action of the oxygen when used to combat tubercle bacilli in closed cavities is suggested by Wells and his collaborators. They state that, although during the growth of the tubercle bacilli, oxygen is absorbed and carbon dioxide is given off, oxygen pressure much over normal inhibits the growth of tubercle bacilli. Again, in order that the growth of the tubercle bacilli takes place, the carbon dioxide must reach a certain concentration. The introduction of oxygen into the abdominal cavity, first, then owing to the pressure of the oxygen and, second, by the reduction in the concentration of the carbon dioxide surrounding the tubercle bacilli growing in the peritoneal cavity, inhibits the growth of these bacilli.

Wells and his associates further state that Gendron and Banchet in their use of oxygen in the treatment of tuberculous fistulæ and abscesses found that there was no benefit unless there was an active circulation of the blood through the tuberculous tissue. We infer from this that the rapid absorption and distribution of the oxygen through the system give rise to a general increased resistance resulting in a healing of the local lesion. These same authors cite Todd's ex-

periment along this line. His work was carried on for five years, and experiments were made on 280 guinea-pigs. These animals were inoculated with tubercle bacilli mostly subcutaneously. They were first put in a pen and oxygenized or azonized air supplied, 1 to 4 per cent oxygen being added to pure air. The results were as follows:

1. The animal oxygenized before inoculation always showed beneficial effects.
2. No control animals have ever survived their infection nor showed any healing.
3. Treated animals have shown healing and lived longer than controls.
4. Controls have never lived more than six months, while the treated have lived eighteen months after inoculation.

Todd feels that in his experiments by using certain forms of intensified oxygen, which is absorbed into the system, he has raised the vital forces of the bodies of these animals so as to enable them to throw off or better withstand the tuberculous infection.

We see then the diversity of opinion among the men who have done the most work along this line when they endeavor to explain just what takes place through oxygen inflation of the abdomen or other closed cavities for therapeutic purposes.

This paper was written with the hope of directing more general attention to abdominal inflation in the treatment of tuberculosis within the abdominal cavity. We do not believe that this is a cure-all for these conditions. We do believe, however, that the injection of oxygen into the abdominal cavity has a very distinct place in the treatment of selected cases of tuberculous peritonitis, as well as in the treatment of certain forms of tuberculosis of the bowel. It is only by the wider application of its use under proper circumstances that its place will be determined.

Since this paper was written, we have treated a number of additional tuberculous conditions of the abdomen with oxyperitoneum. The results have been particularly striking in the cases of tuberculous peritonitis, whether of the exudative or non-exudative types. The detailed results of these latter cases will be included in a later report.

#### BIBLIOGRAPHY

1. F. A. C. Scrimgers Nelson: *Living Medicine*, vol. v, p. 592.
2. Bainbridge, Wm. S.: Intra-abdominal administration of oxygen, *Annals of Surgery*, March, 1909, p. 305.
3. Bainbridge, Wm. S.: Oxygen in the peritoneal cavity, with report of cases, *Am. J. Obstetrics and Gynecology*, vol. iii, No. 4, April, 1922.



4. Meeker, H.D.: A case of tuberculous peritonitis treated by intra-abdominal use of oxygen, *Inter. J. of Surgery*, 25:247, 1912.

5. Goodwin, H. J.: A note on intraperitoneal injection of oxygen during abdominal operations. *The Lancet*, p. 828, September 21, 1912.

6. Well, F. Emilee and Loileseur, J.: *Bull. and Mem. of the Medical Society of the Hospital of Paris*, December 16, 1921.

7. Fritz, Prof. Sargo W.: Therapeutic pneumoperitoneum in tuberculous peritonitis. *Med. Klinik*, Berlin, December, 1921, p. 1513.

8. Rost, Earnest: Treatment by inflation of oxygen of tuberculous affections. *British Med. Jour.*, 1921, vol ii, July-December, p. 976.

9. Stein, Arthur: Oxygen inflation of peritoneal cavity in tuberculous exudative peritonitis. *Jour. of the A. M. A.*, March 12, 1922, lxxviii, p. 718.

10. Davis, N. P., Pittsburgh, Penn.

11. Laney, R. L.: Lake Julia San., Pubosky, Minn. Personal communication.

12. Bainbridge, Wm. S.: Oxygen in peritoneal cavity, with report of cases. *Am. Jour. Surg.*, April, 1923, vol. 37, p. 52.

13. Mattick, W. L.: Intraperitoneal oxygen inflation in the treatment of ascitic tuberculous peritonitis, with report of case. *Am. R. of T. B.*, January, 1924, vol. viii, p. 473.

14. Gilbert, O. M.: Pneumoperitoneum in the treatment of tuberculous peritonitis. *Am. R. of T. B.*, January, 1924, vol. iii, p. 479.

15. Sante, L. R.: A simplified pneumoperitoneum technique. *Am. Jour. Roent.*, vol. ix, No. 10, October, 1922.

16. Johnson, Radiologist, Battle Creek, Mich.

17. Case, Jase. P.: Battle Creek Sanitarium, Battle Creek, Mich.

18. Carelli, Humberto H.: Pneumoperitoneum, *Jour. of the A. M. A.*, vol. 8, p. 259.

## EPIDEMIC PLEURODYNIA

By CHARLES B. WRIGHT, M.D.

MINNEAPOLIS, MINNESOTA

In November, 1888, Wm. C. Dabney reported a disease which was epidemic in the vicinity of Charlottesville, Va., characterized by pain in the chest and fever. On account of the agonizing pain on attempting to move, the condition was called by one of his patients "the devil's grip."

During the summer of 1923 several cases of a similar condition were reported as occurring in the mid-Atlantic states from as far north as New York and as far south as Virginia. Dr. Maud Kelly investigated an epidemic of an acute febrile condition characterized by severe pain in the epigastrium and chest. A further report was made by Payne and Armstrong. They called the condition epidemic transient diaphragmatic spasm. Hanger, Jr., McCoy, and Frantz (*Journal of the A. M. A.*, September, 1923, vol. 81, p. 746) published an article entitled "An Epidemic of Mild Fever of Unknown Nature," giving a report of 16 cases seen at the Presbyterian Hospital in New York. They considered these cases typical of a fairly widespread epidemic and commented on the discussion in the daily papers of a peculiar malady called "devil's grip." They designated this condition "epidemic pleurodynia," a clinical entity characterized by sudden onset, pain in the chest or epigastrium, fever of brief duration, and a tendency to recrudescence on the third day.

In the *American Journal of Medical Sciences* for October, 1924, Robert G. Torrey (to whose paper I am indebted for the history and clinical picture of the disease) reports four cases from the Philadelphia General Hospital, and mentions others seen by him and also others reported to him, occurring in and around Philadelphia during the summer of 1924. No deaths have been reported.

The clinical course, as described by Torrey, is as follows: sudden onset, often with a chill; the temperature is elevated to from 102° to 104°, and during the paroxysm the pulse may be very rapid; the pulse curve follows the temperature curve. Pain is the main symptom, occurring in the epigastrium or the back and lower chest. It is aggravated by breathing or motion and is increased during the increase in temperature. It is so severe at times as to make breathing almost impossible, and with the pain there is marked tenderness, which may persist. There may be only one attack, but there are usually recrudescences of pain and fever occurring from twenty-four to forty-eight hours apart. Headache is common. It is frontal and may be severe. Sweating is characteristic and occurs later, independent of any rise in temperature. Prostration is not marked. There is absence of signs of lung involvement, and pleural frictions have not been heard. The knee jerks may be diminished or lost during the acute stage, but promptly return to normal. Tenderness may persist for some time afterwards. As a rule recovery is prompt and complete.

The leucocyte count, red cell count, and urine analysis show nothing characteristic, and blood cultures have been negative. Smears of blood were examined in two of Dr. Torrey's cases by Dr. Small, in one of which he believed he found different stages in the cycle of development of a parasite resembling the malarial parasite. He designated this as plasmodium pleurodyniæ.

The two following cases I believe correspond to the clinical picture described above:

These two children with their parents had just returned from Europe, reaching New York Au-

gust 31, 1924, which day they spent in New York. The following day they went to Philadelphia, motoring and sight-seeing all day, leaving there in the evening of a very hot day for Chicago where they spent September 2d. They arrived in Minneapolis on the 3d, going directly to their country home on the Minnesota River.

Early in the morning of September 5 the older of the two children—a large vigorous boy of 14, height 5 ft. 7., weight 129 pounds—was wakened out of his sleep by a severe pain in the chest and back, and difficulty in breathing. He quieted down after a few hours, but early in the forenoon he had another attack. At this time the mother called me up in genuine alarm, although she is not a woman easily disturbed, over the severe type of pain, thinking the child had pleurisy. At this time his temperature was 102° F. I advised her to bring him to the Abbott Hospital, where I saw him that afternoon. At this time his temperature was 102.4° F., and he was complaining of severe pain in the lower chest, particularly on breathing or movement. He said it felt “as if the muscles were holding his lungs down.” He was tender on pressure over the lower chest. His throat was slightly reddened. The tonsils had been well removed eight years before. There was no glandular enlargement. The chest was entirely clear; no cough. Heart was normal, spleen palpable, and liver just palpable on deep inspiration. Reflexes were diminished; knee jerks were obtained on reinforcement, and then only very sluggish. He gradually improved and seemed quite normal the next day, but on the following day his temperature in the afternoon again went to 102.9° F., and his pain returned, but was much milder. The next morning his temperature was normal, and except for slight soreness around the chest he felt well. The following day, Sept. 9, he was discharged and has been perfectly well since. Sept. 7 his urine was negative except for a very faint trace of albumin; the hemoglobin was 78 per cent; the w. b. c. were 4,400. On the 9th the w. b. c. were 8,400. A subsequent examination showed no palpable spleen, and normal reflexes.

Two days after the boy was taken ill his sister

came down suddenly with a similar attack only the chest pain seemed more marked. She had to be undressed. The pain was so severe over the lower chest and back that she could not move or take a deep breath. Temperature, 103° F. This attack lasted four or five hours, gradually subsiding. Examination revealed slight reddening around the pillars. (The tonsils had been well removed several months before.) No glandular tenderness or enlargement. The chest was entirely clear except for some soreness on deep pressure over the lower chest. Heart negative, spleen palpable, liver not palpable, no abdominal tenderness. Reflexes were obtained with reinforcement. Skin clear. No joint tenderness. The fever subsided and she seemed quite well. The next day she had a temperature of 99° to 100°. The following day she had a second rise to 103°, but with very little recurrence of the pain. The next day she was better, and in two or three days she was well and has been very well since. Later examination revealed no abnormality. The spleen was not palpable. No blood examinations were made on this child.

The distinctive features of these attacks were the sudden agonizing character of the pain with fever, the slightly reddened throat, the palpable spleen, and the markedly diminished reflexes, with entire absence of cough or lung or pleural signs, and a normal white blood count; with a recurrence two days later of the fever and pain in a milder form, with rapid convalescence.

That this condition is due to a protozoa infection seems unlikely, due, it seems to me, to the rapid convalescence without sequelæ. Quinine has been recommended, and in protracted cases it might be used, but most of the cases are so self-limited and subside so rapidly it hardly seems necessary.

I believe if the case is seen early a hypodermic injection of morphine would be the rational thing to give, provided, of course, that the symptoms are not abdominal.

To me it appears that this condition is more likely a form of influenza, and it is quite possible we may see more of these cases. This is my principal reason for reporting these two cases.



## PROCEEDINGS OF THE MINNEAPOLIS CLINICAL CLUB

Meeting of April 17, 1924

The regular monthly meeting of the Minneapolis Clinical Club was held on Thursday evening, April 17, 1924 at the Y. M. C. A. Dinner was served at 6:15 followed by the regular program, Dr. T. A. Peppard, the President, presided.

The following case reports and papers were given:

Dr. Kenneth A. Phelps gave the following report of a case of "Tracheal Stenosis:"

The trachea has a passive function of serving as a passageway between the larynx and the lung. Not much attention has been paid to diseases of the trachea, partly on account of its function and partly on account of the difficulty of its examination; however, tracheal stenosis should be classed as a disease entity though the cause may vary.

The symptoms of tracheal stenosis are principally noisy respiration and difficult respiration. These usually develop simultaneously and increase as the stenosis increases. There are cases of slowly developing stenosis which are not diagnosed.

Sudden suffocation is rarely due to intratracheal causes other than foreign bodies. The bruit is inspiratory as a general rule. When the stenosis is low in the trachea the bruit may be expiratory. Carrying the head forward is listed as a pathognomonic sign of tracheal stenosis; when the head is carried backward it means laryngeal stenosis. When the larynx descends on breathing, stenosis is laryngeal; when the larynx moves less, the stenosis is tracheal.

Stenosis of the trachea following diphtheria may be due, first, to a spasm of the glottis, resulting from wearing an intubation tube, which can be overcome by wearing the proper type of tube, namely, one that will allow the vocal cords some motion; second, trauma from faulty intubation where a false passage has been made into the larynx or improperly done tracheotomy, usually meaning an opening too high in the cricoid-thyroid space, too small an incision, or one not in the mid-line.

In all of these conditions the neurotic element is marked; the fear that the child has of having the tube removed often increases the difficulty of decanulation.

In May 1920 Robert T., aged 2 yrs., had laryngeal diphtheria with negative culture. Intubation was done at the Minneapolis General Hospital, and he wore the tube forty-one days. He left the hospital under protest and went to Rochester in June, 1920. Tracheotomy was done, and he stayed there for observation three or four months without further treatment. Since that time he has worn a tracheotomy tube constantly. This has been changed the last three months; considerable difficulty in changing the tube. Was recently in the University Hospital, and no attempt was made to remove the tube.

Examination: Child wearing tracheotomy tube; apparently low tracheotomy. Can get no air through nose and mouth, and he has no voice. Is comfortable with tube in place. Tonsils large, and several

carious teeth. Larynx: vocal cords in good condition. Below the cords is seen the tube or web.

January 16, 1924: ether anesthetic given through tube. An attempt was made to pass bougie through the trachea, but this was unsuccessful. The trachea was opened externally, considerable necrotic material was removed from above the tracheotomy tube, the larynx was split, and the membranous stenosis incised parallel to the vocal cords. The incision was closed, and the tracheotomy tube replaced. There was very little reaction to the operation.

January 23, 1924, the child was able to make a sound; tube changed daily.

January 25, 1924, the child began to talk.

February 6, 1924, dilated from above and T-tube inserted. Considerable cough caused by tube.

February 12, 1924, T-tube removed, and old one replaced.

March 7, 1924, dilated from above; lumen large enough to admit a 4 mm. bronchoscopic tube.

March 9, 1924, tracheotomy tube removed permanently; child slept easily without tube.

He rapidly learned to talk, and in six weeks from the original operation the tracheotomy tube was removed permanently, leaving a fistula which was kept closed with gauze most of the time. (At the end of four months this fistula was closed by a plastic operation. The child left the hospital with no difficulty in breathing naturally, able to talk easily, and the scar of the old tracheotomy wound was hardly noticeable.)

## DISCUSSION

DR. ERLING HANSEN: Dr. Phelps spoke about the development of these cases. They sometimes develop from diphtheria itself, membrane formation and ulceration; or more frequently from instrumentation,—the insertion of intratracheal or tracheotomy tubes, or using tubes that are ill-fitting. Thickening of the wall and development of granulation tissue and, later on, scar contraction are some factors which produce stenosis of the larynx and trachea.

I think Dr. Phelps is to be congratulated on the fine results he obtained in this case

Dr. J. C. Michael reported two cases.

CASE 1.—This is the case of a young man, aged 28, single, laborer, who gave a history of primary infection appearing December 4, 1923. The sore was present three weeks. It disappeared gradually after beginning of intravenous treatments of neosalvarsan. He was given six doses. On February 7, the patient began to suffer from sharp severe pains in the interorbital region. Pains continued constantly. On admission to the hospital on February 26, he had the pains mostly in the temples and ears; some dizziness and tinnitus; no nausea. Sleeps poorly at night because of pain. Vision is unaffected.

Neurological examination at time of admission to St. Mary's Hospital presented great toe extension on both sides. No Kernig; no neck rigidity could be made out; and no other signs of focal disease were present.

Spinal puncture was made on February 29. A clear fluid escaped under greatly increased pressure. Headache seemed relieved from then on. Neosalvarsan was administered intravenously at five-day intervals.

The blood Wassermann was positive; spinal fluid examination indicated 116 cells; Nonne +; Lange 122455420; and Wassermann strongly positive.

This case is of unusual interest because the neurologic symptoms developed in such a short interval after the primary infection, that is, in about two months after the onset of the primary genital sore.

CASE 2.—My other case is that of a middle-aged man, a railroad car repairer, who on March 20 of this year fell off a scaffolding. He was immediately paralyzed; he had had no feeling whatever in his leg for twenty-four hours after the injury, when I examined him. Sphincter control has been completely lost. There has been considerable pain in the lumbar region of his back, and this pain has radiated laterally and superiorly, but not downward. The slightest motion, active or passive, of his body aggravated this constant pain.

On examination I found the nervous system objectively negative above the level of Poupart's ligament except for marked hyperesthesia and hyperalgesia over an area of three inches above the level of Poupart's ligament. Joint sense is present in both hips. All skin and tendon reflexes are absent in both legs. Sensation to all forms is lost below the level mentioned, the perineum included. Anal sphincters are relaxed.

X-rays here presented show 12th dorsal and 2nd lumbar spines to be fractured. The question of operative interference then came up. While there was no serious contra-indication, nerve examination led me to the conclusion that surgery could offer nothing further than exploration. A laminectomy was done, but the patient died immediately after the operation.

#### DISCUSSION OF BOTH CASES

DR. MICHAEL: It has been confirmed that brain syphilis occurs most frequently in the first year after infection; the second and third years follow successively in order of frequency. Southard quotes Craig as having found brain infection within one month. Nonne quotes a case of Tourette's which involved extensively the brain and cord and which came on in two months. He reports one of his own having a three months' interval, and two others four months.

DR. C. A. BOREEN: It is very unusual for nervous involvement to come on so early, and a good deal more unusual to have such acute manifestations of nervous involvement so early.

DR. MICHAEL: I saw one man in the country several years ago who was practically stuporous. After getting him down to the hospital we had no difficulty in establishing the diagnosis. In getting the history we found he had his primary infection within nine months prior to that time. Lethargic encephalitis and syphilis of the brain could be coincident; however, I have never seen it occur.

DR. S. R. MAXEINER: I would like to ask particularly with reference to these cases if we do not frequently get neurological manifestations. When I was with

Dr. Farr we had five cases of extra-genital chancre with early neurological involvement. One man gave a history of having a mole or skin tumor on his neck and having it nicked in a barber shop. He practically lost the vision in his eyes from retinitis. Another was a woman who had a primary lesion on the tonsil. Another girl had a lesion on the lip with similar symptoms. Another man came to the office with tremor and sore throat, and was practically delirious; in fact was supposed to have delirium of streptococcic sore throat. He was virtually stuporous when we saw him.

All these cases cleared up under intensive treatment, but the extragenital lesions seem to be prone to complications. We had four in one year.

DR. MICHAEL: I doubt whether, as a general rule, extragenital lesions should be followed more frequently by neurological involvement. However, if the face or any area of the head is first affected, I would feel that there may be a greater liability to brain syphilis.

DR. KENNETH BULKLEY (discussing Case 2): Cases of cord injury are always interesting. They require careful study for the accurate determination of the level and degree of injury. Clinically it is often impossible to decide whether there is or is not a transverse lesion. We have in the hospital at the present time a boy of 22, who, while working, fell a distance of about sixty feet. This accident occurred in the country, and the patient was not seen until three days after injury, when, clinically, he presented a complete Brown-Sequard syndrome with a 6th dorsal lesion. An extensive laminectomy with wide exposure failed wholly to demonstrate a cord lesion on this patient. There was not even a subdural hemorrhage. The patient is still alive after a number of months. His complete paralysis persists. His condition is pitiful. This particular case was not benefited by operation, but, in view of the clinical findings, he might have been benefited. It is this possibility of relief for a condition that, unrelieved or left alone, is hopeless which convinces us that exploratory laminectomy performed as soon as possible on this type of case is always justified.

DR. J. M. HAYES: I recently had an unusual case of injury to the spine. This was quite different from Dr. Bulkley's case. A large, muscular man, in attempting to catch a runaway team, was caught between the wagon and barn. He was somewhat bruised throughout the length of his spine, but did not complain of much discomfort, and he continued to carry on at heavy work. He had no marked trouble until about one year later. Then retention of urine was his first symptom. His difficulty was so definitely confined to this area that prostatic obstruction was suspected. Soon ataxia became marked, and when he came to us he was unable to stand on his feet. This was about one and one-half years after the injury. X-ray showed definite pathology in the lumbar area, but none was made out higher up. Neurological examinations pointed to a lesion higher up. There was a large amount of albumin and pus in the urine, and the patient had to be catheterized. In view of the indefinite condition we decided upon an exploration. On opening down on the dorsal spine one could observe with



each respiration the definite movement of the 9th and 10th vertebræ over each other. The 10th vertebræ was turned on its axis to produce a definite pressure on the cord. A laminectomy was done on the 9th, 10th, and 11th dorsal vertebræ. The cord showed no other pathology except this definite angulation. The wound was closed, and a plaster-of-Paris jacket was put on. After a few days sensation returned to the bladder. He could not feel the catheter before, but now he felt it very acutely. Soon he began to evacuate the bladder and catheterization became unnecessary. He still had severe pain in the hips and definite saddle anesthesia in the perineum, indicating pathology lower in the spine. In a second operation, the cord was exposed from the 11th dorsal vertebra down. It appeared normal throughout except at a point where the lamina of the second lumbar vertebra caused a definite pressure. Here there were a rather deep depression and a slightly darkened color of the cord. After this operation the patient was put in a leather jacket reinforced by steel. The severe pain he had previously complained of disappeared entirely after this operation, and the bladder condition gradually improved until the urine was entirely clear.

The patient is now getting around on crutches with a much improved condition of the bladder and the general physical condition.

Kümmell, in 1895, first described a class of cases into which this may be placed. He holds that there usually is no fracture of the spine at the time of injury, but the bone is injured and the weight causes compression destruction of the vertebræ. The greatly delayed symptoms might suggest this sequence of events.

#### DISCUSSION

DR. MAXEINER: There is one small but extremely important point in this connection. Dr. J. B. Murphy, of Chicago, brought out the fact that in the distended bladder of paralytics if you catheterize the patients they almost always die from pyonephrosis, but if you massage the prostate and get the patient to empty the bladder himself, the patient will get along better.

Dr. W. J. Kremer read his inaugural paper entitled "Personal Impressions of Gonorrhea," which will be published later in *THE JOURNAL-LANCET*.

#### DISCUSSION

DR. BOREEN: I do not know how to discuss Dr. Kremer's impressions, but I will say that he has given us a very interesting paper. I think without doubt that the majority of doctors treat gonorrhea a good deal the same way that the Irish medical student replied when asked how he would treat gonorrhea, he said "with contimpt." I think you must impress on the patient the fact that his gonorrhea cannot be cured over night. The shortest time is four to six weeks and the average length of time six to eight weeks.

Of course Dr. Kremer did not discuss modes of treatment. I think probably every doctor who does this kind of work has his own line of treatment. A lot of patients go to a doctor and when the discharge stops, the doctor tells him he is all right and he

thinks he is all right. The thing is persistent and takes a long time. I think if you get the patient's confidence he will stick by you. The main thing is for him to keep coming until he is well.

DR. KREMER: The point I did try to make in this paper was that the doctor should acquaint the patient with his disease and what is liable to follow, and then the patient will take better care of himself and see that he is properly treated. Of course it does take time, especially after the case has become chronic; but it can be cured, there is no question about that.

#### DISCUSSION

Dr. Paul Rowe read his inaugural paper entitled "Ulcerative Colitis," which will be published later in *THE JOURNAL-LANCET*.

DR. T. A. PEPPARD: This paper of Dr. Rowe's should elicit very considerable discussion. I would like to ask Dr. Rowe about the frequency of occurrence of the disease. We have had at the General Hospital three cases in 1923 and three cases during 1922, and we have had one case so far this year.

The symptomatology seems to vary somewhat according to Dr. Rowe's outline.

Of the cases that I recall at the General Hospital, the first case had much the appearance of typhoid. We were misled and did not make the diagnosis in that case. Petechiæ appeared, and we felt that the case was one of bacteremia. Necropsy in this case showed ulcerative colitis. The appearance of the patient during the illness was not unlike typhoid. The second case was more acute, ran a shorter course, and the patient died of peritonitis. In the second case we made the diagnosis, but it was overruled by the majority of the staff, who advised removal of the appendix, which was done, but the condition of the appendix was not unlike that in the entire bowel. Section of appendix revealed no structural changes characteristic of appendicitis.

The condition is one with relatively high mortality. In regard to diagnosis, that is not difficult provided the condition is known about and thought of in considering the differential diagnosis. That is an important point because the condition does not seem to be generally considered nearly so much as its frequency of occurrence would warrant.

Another question very frequently asked is whether peritonitis occurs without perforation of the ulcer.

DR. HAYES: Dr. Rowe referred to Dr. Logan's treatment of ulcerative colitis. Some time ago Dr. Logan suggested a treatment which proved very striking in two cases in which we tried it.

He suggested fifteen minims of tincture of iodine in a full glass of water three times a day for three weeks. He stated that he had some good results with this treatment.

We happened to have two quite early cases with the classical symptoms and findings, on which we tried this method of treatment. Each of the two cases cleared up promptly on three weeks' treatment and have had no symptoms since. It is over a year now since we treated the first case.

DR. J. WARREN BELL: I wonder if perhaps the English army did not have a number of these cases and not appreciate it at the time. As far as resistance

went, the men did not have it. They were not willing to give their men the proper food. The diet consisted of bread, jam, something like dog biscuit, and oatmeal almost as fine as flour. These symptoms of very marked diarrhea immediately followed the intake of food. This very outstanding condition was the biggest disability, as far as disease went, in the English army, I am sure. The men in the hospitals did not find an etiology to suit all the cases. They worked very industriously, too, but could not discover a germ that fitted all the cases. These troops were treated with various remedies, such as opium, but it was not half as effective as I found a little magnesium sulphate to be. For some reason or other the magnesium sulphate put the bowel at rest and gave the men comfort that they could not get from anything else.

DR. FLOYD GRAVE: As to the diarrhea which was prevalent in the British army, of which Dr. Bell speaks, I can make no comment, except that from my experience in the American army I rather believe it was bacillary dysentery.

I made cultures from the stools from the first cases I saw, and obtained the bacillus of Shiga dysentery. Dr. Zinsser came to see my cases and said they were bacillary dysentery and that all subsequent cases should be treated as such, without going to the trouble of routine cultures, since the disease was then epidemic.

To obtain consistently positive cultures from these cases the stools must be cultured immediately, while still warm, and during the acute stages of the disease. There is great difficulty in obtaining the organisms after the disease has passed beyond the acute stage. Possibly many of the cases of which Dr. Bell speaks were not obtained early enough to get the causative organism.

Bacillary dysentery does cause extensive ulceration of the bowel in the more severe cases but I do not believe this is the disease which Dr. Rowe has reference to in his paper.

DR. P. H. ROWE: Statistics on the frequency of the condition are wanting. Some years ago a writer in the *British Medical Journal* stated that 20,000 deaths occurred annually in England from "diarrhea." It is the opinion of many writers that a large number of these deaths are due to ulcerative colitis. The difficulty has been that there has been so much confusion as to just what is ulcerative colitis. Different types of dysentery have been described by various writers as ulcerative colitis. Epidemics occurring in institutions are usually bacillary dysentery, which is not the type considered here. The sporadic condition is considered in this paper. The stools have been routinely cultured for amebæ and the organisms of dysentery, but they are always negative.

I do not know of any improvement in the method of treatment. I should hesitate very much to administer magnesium sulphate to any patient with ulcerative colitis. A method of treatment has been described where the patient is given catharsis, which is followed by bismuth. The laxative empties the bowel, and the bismuth comes along and theoretically soothes over the sore spots. To date all treatment is empirical with the exception of surgery, which is usually undertaken to facilitate further medical treatment.

DR. MAXEINER: One thing about the British army that we do not experience is that perhaps 60 per cent of their men in the army had served in the tropics, and a goodly percentage had a history of having had malaria or dysentery in Egypt of India.

—J. C. MICHAEL, M.D., Secretary.

## MISCELLANY

### AFTER-TREATMENT OF VACCINATION WOUNDS

The following after-treatment of vaccination wounds is recommended by the Division of Public Health of the city of Minneapolis:

Apply no gauze, bandage or shield. Allow the serum from the "scratch" to mix and dry with the vaccine. This forms an airtight seal. The pustule forms under this seal and raises it without breaking. The pustule undergoes a drying process forming a crust, which dries and desquamates, leaving a pitted scar.

The only danger from vaccination comes from the infection of the wounds with bacteria which enter through the breaking of the natural seal. All dressings applied soften the natural seal and this facilitates breaking. A ring of felt (bunion plaster) may be applied immediately after vaccination on patients who can not expose the vaccinated area to the air for the twenty to thirty minutes required for drying. This felt ring is to prevent contact of clothing until drying takes place and should be removed in a few hours. A clean piece of gauze, changed daily, may be pinned or sewed to the inside of the shirt sleeve in apposition to the vaccinated area.

To conclude, vaccine which has been kept "off the ice" for a few hours becomes inert.

Division of Public Health,  
WM. F. REASNER, M.D.  
Assistant Commissioner.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

A. J. McCANNEL, M.D. - - - Minot, N. D.

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

339-840 Lumber Exchange - - Minneapolis, Minn.

NOVEMBER 15, 1924

## THE INTER-STATE POSTGRADUATE ASSEMBLY

The meeting of the Assembly, under the direction of the Tri-State District Medical Association, which took place in Milwaukee from the twenty-seventh to the thirty-first of October, inclusive, was a very satisfying meeting. The number of registrants was officially 1,600, about 100 more than they had in Des Moines last year; but the attendance was increased by internes, outside physicians, nurses, and visitors, so that at times the auditorium held about 2,000 people, although there was a seating capacity of 2,200. A large auditorium of this kind, which was a made-over meeting place, that is, scaffolding and seats were prepared to make it an available meeting-room, is not generally satisfactory from an acoustic point of view, and in this vast hall most of the men, unless they were properly instructed, could not be heard with any degree of distinctness. After trying it out for a few moments, a microphone was placed in front of the speaker, and if he had a carrying voice he could be heard in every point of the room. But the man who disregarded the microphone and forgot that there were amplifiers in the upper part of the room was in the same false position as the man with the poor voice: every time the speaker turned from the microphone his voice faded away, but the Speaker of the House was usually alert enough to remind him that, in order to be heard, he must speak into the instrument. In this way they got through the program wonderfully well.

Men were present from all over the country, speakers from Winnipeg to New Orleans, from New York to San Francisco, and others from abroad. The men from the Tri-State district turned out very well, and now that the District Association has taken in three other states (Indiana, Missouri, and Minnesota), the attendance was markedly increased. It gave many of the men from the additional three states an opportunity to see the wonderful work which is being done by the Assembly. There were 80 men from Minnesota, at noon on Thursday, the next to the last day of the meeting. There were 7 registered from Montana, and 15 from South and North Dakota.

It would be impossible to go into a discussion of the various speakers and the men who gave clinics, but it was interesting to note that one of the men from New York, in fact all of the men from outside and distant parts of the country, were enthusiastic in their praise of the meeting; and the New York men frankly confessed that it would be impossible to put on such a meeting in New York City because they would be unable to promote it and wholly unable to furnish the enthusiasm which the Tri-State District Association produces. One man expressed his gratification and his appreciation of the invitation to talk before the Assembly. He said he had never talked before such a large congregation of medical men, and yet he was one of New York's well-known medical men and a wonderful teacher. So that the impression made upon the visiting speakers must have been very gratifying to the officers of the Association. This man, by the way, was Dr. Russell A. Hibbs, Professor of Orthopedic Surgery, Columbia University. He was a very active, clear enunciator and a man with a wonderful carrying voice, and he talked of his work and of his subject with the same enthusiasm that a younger man would have shown, perhaps more so, because he had acquired knowledge through experience and wisdom that stood by him. And when his time was up the audience demanded more of him and he talked for more than an hour, three times the time ordinarily given to the speakers. He was continued because he was so well understood. Other men, probably equally good in their line of work, had not the power to put their voices through the microphone and the amplifier, and the result was that they were not heard beyond the first few rows of seats. Many points were lost to the audience because of the inability to hear, and largely on account of the inability of the speaker to put his voice through.

As usual, Dr. John B. Deaver, Professor of Surgery of the University of Pennsylvania, conducted a clinic and read a paper in his usual characteristic and dramatic style. He entertained us all; he gave us a lot of information; and he drew from his long and extended experience some very important facts. He rapped the internist for his neglect in recognizing a surgical condition rather than a medical. He thought that a great many of the ulcer cases, gall-bladder cases, and other abdominal troubles could best be treated by the surgeon, whose fingers made the diagnosis, assisted by a knife, a crowbar, and an axe! But everyone who knows Dr. Deaver knows he has a big heart and broad understanding, even though he be critical. Dr. George W. Crile, Professor of Surgery at Cleveland, Ohio, and Drs. C. H. and W. J. Mayo received, as usual, the plaudits that were their due, and all were very happy in their delivery. Dr. C. Macfie Campbell, Professor of Psychiatry in the Harvard University School of Medicine, not only gave a wonderful clinic, but also read a very apt paper on "Morbid Attitudes and Beliefs." He is a very delightful speaker, and his clinic and paper were very much appreciated.

Many other men from various parts of the country and from neighboring states, notably from Chicago, participated in the interest of the meeting, among them Dr. Dean Lewis, Dr. Julian H. Hess, Dr. A. B. Kanavel (Professor of Surgery, N. W. University School of Medicine), and Dr. Harry M. Richter, from Chicago; a man from Kansas, Dr. Ralph Major; Dr. Charles J. White, of Boston; Dr. A. MacKenzie Forbes, Clinical Professor of Orthopedics, McGill University, Montreal; men from Colorado; and two men from California. All these men assisted in making the clinic a success. Mention must be made of Dr. George E. Brewer, Professor of Surgery, Columbia University, who gave a wonderfully clear, concise, and snappy clinic on "Deformities, New Growths, and Injuries to the Abdomen." He knows how to give a clinic, and he knows how to talk.

Milwaukee furnished the Association with delightful weather, and the men of Milwaukee provided entertainment. One evening after the evening session an entertainment was given at the Roof Garden of the Wisconsin Theater, and on Friday evening the annual banquet was held at The Pfister. One can speak only with admiration of the various committees in Milwaukee, who must have spent an enormous amount of time in preparing for this, the second, meeting of the Assembly. Meetings of all kinds, cover-

ing all possible angles of the convention, required an enormous amount of time in getting ready for the meeting. Personally, the editor must refer again to the Speaker of the Assembly, Dr. George V. I. Brown, of Milwaukee, who sat from seven o'clock in the morning until ten-thirty at night, or later, presiding over each meeting. He still has his wonderful presence, and he carries his meeting on with ease and exactness both in regard to the speaker and the audience. One might think that this sort of a meeting was too long and too intensive, but when one considers that there was something different about every twenty minutes it is no wonder the interest continued. Of course the managing director, Dr. Wm. B. Peck, of Freeport, Illinois, was all over the place, inside and outside, meeting his many acquaintances and directing everybody as to what they should do and how they should conduct themselves. Without Dr. Peck the meeting would be very difficult, for he is a whirlwind within himself and creates a whirlwind outside.

The next meeting of the Association will be in St. Paul. In the meantime, the editor expresses himself as tremendously pleased to think that he was in attendance, and that he really acquired so much information.

#### THE SMALLPOX SITUATION

There is no question but that there is a smallpox epidemic in Minnesota, and there should be no hesitancy about people being vaccinated, that is, all except Christian Scientists, chiropractors, and others of similar cults. There has been a great deal of criticism, or was at first, when vaccination was made general, that it was simply an opportunity for the doctor to make a little money and incidentally to make a great many people suffer from sore arms and sore legs. The vaccine this season has been very active and effective because it is fresh and is kept at a low temperature until used. The results have been that most of the vaccinations have taken, moderately or violently, according to circumstances. Sometimes the reactions are sufficient to make one feel tired or upset for twenty-four or thirty-six hours; and, again, where the vaccinating is done by the wholesale, going through the department stores and other buildings where large numbers of employees are vaccinated, there is apt to be a little carelessness, a little lack of attention to details, and the result is a very actively inflamed arm or leg. But no deaths have occurred from vaccination, and very great protection has been furnished the vaccinated against smallpox.

The principal opponents of vaccination have



been among the Christian Scientists and the cultists; and where a chiropractor was advising his patients not to be vaccinated, that they were likely to suffer all sorts of infection, and perhaps death from vaccination, he himself was stricken with hemorrhagic smallpox and died,—a very striking illustration of poor advice.

In one large industrial plant some of the office force objected to being vaccinated and thought it was all "bunk." But the next day one of the women was absent from the office, and when they telephoned her she told them that her father was at home ill with smallpox. The lesson was a good one, because 100 per cent of the employees of the industrial plant were promptly vaccinated, and without objection.

Some years ago when the Antivaccination Society succeeded in having the Legislature repeal the compulsory vaccination act, the president and secretary of the Society both died of hemorrhagic smallpox,—another striking illustration of the result of interfering through ignorance and dogmatism. It is said that 400,000 people in Minnesota have been vaccinated within a month, 200,000 of them being residents of Minneapolis. There are all the way from 130 to 150 cases of smallpox in Minneapolis, and there have been a number of deaths,—sometimes within twelve hours and occasionally the patient lived twenty-four hours. Old vaccination scars are no good. A nurse who applied for a position in a hospital for contagious disease asserted that she had been vaccinated and it had taken well, but she died within twenty-four hours, and it was discovered afterwards that her vaccination was done early in life. Numbers of cases of this kind have developed where people think they are immune because they have been vaccinated in early life, infancy, or within three or four years. The rule holds good that every time there is an epidemic of smallpox everyone should be vaccinated.

This epidemic is not limited to Minnesota. It is all over the country, east, west, north, and south. So it would be advisable for those who travel to be vaccinated before they begin their journey. It is said that the virulent type of smallpox was introduced into Minnesota by a man who came from Saskatchewan, and who died in Duluth on January 26th of this year.

Thousands of people are being vaccinated daily and thousands are waiting at the free-vaccination clinics that have been established in the Twin Cities. Remembering that smallpox is a winter-born disease, usually, it behooves us all to take no chances and not to rely upon cold weather to stamp out the disease. Get yourself

vaccinated, and advise your patients to be vaccinated, remembering that it is a minor surgical operation and should be done with great care and safeguarded from all manner of infection.

Some of the vaccinators are employing the open method, simply pricking through the drop of vaccine, allowing the surface to dry and then without covering the vaccination mark, to go unprotected. Others of the older school are using various protectors for a time, and sometimes throughout the period of the vaccination. Either way is good if you do not get it wet too soon, or infected.

#### ALBERT EDWARD WIGGAM

Efforts are being made to secure Mr. Wiggam for a lecture in Minneapolis at an early date; the time and place will be announced when the arrangements have been made. Mr. Wiggam has written two books, "The New Decalogue of Science," which we have commented on before, and "The Fruit of the Family Tree," both dealing with biology, heredity, and natural selection, and both full of interesting matter. If Mr. Wiggam can be persuaded to come here to lecture, every doctor should hear him, for he has many good points on biological and hereditary topics that will make many medical men sit up and blink their eyelids. He is a very entertaining and easy talker, and he has a way of putting things over to his audience. As this lecture is to be a public lecture, it will not be confined to medical men, but will be participated in, it is hoped, by many organizations of the city.

We are woefully ignorant of their new scientific problems. It is only a comparatively few years ago that the Mendelian law was interpreted, and it is but a few years, very few in fact, since people have taken up the study of biology and heredity. Every doctor needs to know more of this subject than he does, and everyone who is at all interested in scientific problems should familiarize himself with this author and his books.

The members of the Hennepin County Medical Society will receive personal letters asking them to subscribe for two tickets each, the price of which will be approximately \$1.50. This is done in order to enable the promoters of the lecture fund to carry out the project, as it will cost nearly five hundred dollars to get Mr. Wiggam here, to advertise him properly, and to secure an auditorium for his talk.

Mr. Wiggam was born in southern Indiana in 1871. He took his course of political science in Johns Hopkins, but his course was interrupted on account of ill health for a time. He lived

in Colorado for six or seven years. From there, after his recovery, he came to Minneapolis and was a reporter and editorial writer on the *Minneapolis Journal*. In the presidential campaign of 1900 the Republican National Committee appointed him a campaign speaker. It was about this time that he took up his work on biology, heredity, and eugenics in this country, and he is said to have the largest biological library in existence, consequently he is a man who is competent to speak to the people with authority. He had a good deal of difficulty at first in getting his subject before the people. Scientists thought that it would be impossible to interest the public and they feared that it would impair their dignity, and they believed that writing a popular version of the problems and the trend of science could not be accomplished, but Mr. Wiggam succeeded. He visited all the leading laboratories in Europe and in this country. In 1912 he was a delegate to the first eugenic congress held at the London University, and again was a delegate to the second congress held in New York. When his book, "The New Decalogue of Science," was published, it immediately commanded attention and unequivocal praise of scientists and laymen throughout the country. Mr. Wiggam is now devoting his time to special lectures and writing. His home is in New York City.

## NEWS ITEMS

Dr. H. T. Frost has moved from Hallock to Crookston.

The Tri-State District Medical Association will meet in St. Paul on October 26-30, 1925.

The National Tuberculosis Association will hold its next annual meeting in Minneapolis in June, 1925.

Two damage suits of \$7,000 and \$5,000, respectively, have been brought against "Dr." S. R. Kirby, of Thief River Falls.

Dr. A. K. Stratte, a 1923 graduate of the Medical School of the U. of M., has located at Pine City. Dr. Stratte was recently married.

The Western Surgical Association meets on December 4 to 6 at French Lick Springs, Ind. Dr. H. P. Ritchie, of St. Paul, is the secretary of the Association.

Dr. F. U. Davis, health commissioner of Fribault, says a visiting nurse has been the chief factor in controlling the spread of contagious diseases in that city.

The patients of the Phalen Park Hospital for Crippled Children, at St. Paul, observed the anniversary of the birthday of its founder, Dr. A. J. Gillette, last month.

It is stated that 400,000 persons were vaccinated in Minnesota within a month. That sounds like somebody's majority in a presidential election. It at least precludes a possible disaster.

In the first ten days of November there were ten deaths from smallpox in Minneapolis, and there were 26 deaths in October. Wholesale vaccination has been done during the past month.

Dr. George G. Balcom, of Lake Wilson, died last month at the age of 56. Dr. Balcom was a graduate of the Medical School of the University of Minnesota (College of Homeopathy) in the class of '96.

At the October meeting of the Northwestern District Medical Association of North Dakota, held at Minot, papers were presented by Dr. C. N. Callander, of Fargo, and Drs. H. M. Erenfeld and C. N. Ransom, of Minot.

The November meeting of the Consulting Medical Staff of the Lymanhurst Hospital occurs on the 25th, and every physician is invited to attend it. The speakers at this meeting will be Drs. L. F. Richdorf, F. W. Schlutz, E. J. Huenekens, and Rood Taylor.

The Minnesota Public Health Association at its annual meeting, held this month, elected the following officers: President, Dr. H. L. Taylor, St. Paul; vice-president, Dr. N. O. Pearce, Minneapolis; secretary, Mrs. J. A. Thabes, Brainerd; treasurer, W. A. Laidlaw, St. Paul.

At the annual meeting of the Mitchell District Medical Association of South Dakota, held last month, the following officers were elected: President, Dr. G. A. Clauser, Bridgewater; vice-president, Dr. C. V. Templeton, Woonsocket; secretary-treasurer, Dr. R. A. Kelly, Mitchell.

At the annual meeting of the Park Region Medical Society, held at Fergus Falls last week, the following officers were elected: President, Dr. W. S. Broker, Battle Lake; vice-president, Dr. H. L. Sargeant, Rochester; secretary-treasurer, Dr. T. S. Paulson, Fergus Falls; delegate, Dr. A. C. Baker, Fergus Falls.

The Minnesota Sanitary Conference held its annual meeting at St. Paul last week. A resolution was passed that a general campaign of education be begun looking to better co-operation between physicians and health officials. Officers for the current year were elected as follows: President, Dr. O. E. Locken, Crookston; vice-



president, Dr. D. C. Lohead, Rochester; secretary-treasurer, Dr. A. J. Chesley, executive officer of the Minnesota State Board of Health.

So many of the hospitals in this field were already recognized as the standardized hospitals by the American College of Surgeons that the names of only six new ones appear in the list of those recognized since Jan. 1. They are as follows: in Minnesota, Asbury Hospital (Minneapolis), Winona General Hospital (Winona), Morgan Park Hospital (Duluth) in Montana, St. John's Hospital (Helena); in South Dakota, the Chamberlain Sanitarium and Hospital (Chamberlain); in North Dakota, none. A splendid record, indeed!

The story of the fourth year's (1924) work of the North Dakota Tuberculosis Association is told in an exceedingly interesting pamphlet by Dr. James Grassick, President of the Association. The clinic car travelled 3,127 miles; 61 public clinics were held; 2,594 persons were examined; 588 individuals were treated; 113 home calls were made; and an amount of cheer, advice, and good-will was scattered in this home missionary work that is beyond estimate. What a contrast to the work of the politicians of the same beautiful state! And the moral? Buy Christmas Seals, and—buy more.

#### MINNESOTA MEDICAL ALUMNI MEETING

A meeting of the Minnesota Medical Alumni Association was held in St. Cloud on October 10. President, Dr. Paul B. Cook, was in the Chair. The minutes of the last meeting were read and accepted. Dr. E. R. Hare then reported for the Advisory Committee that a meeting had recently been held and that definite work was in progress, but that there was nothing of importance to report at this time. Dr. Cook then appointed a nominating committee to select a few names for servants for the following year.

Dr. H. W. Jones reported for the Necrology Committee as follows:

Dr. Warren A. Dennis, St. Paul, U. of M., 1896, died November 8, 1923. Dr. John Egan, Minneapolis, U. of M., 1907, died November 30, 1923. Dr. Theo. C. Lund, Hutchinson, U. of M., 1898, died February 25, 1924. Dr. J. B. White, Belle Plaine, U. of M., 1891, died August 30, 1924.

The Nominating Committee then reported, and the Secretary was instructed to cast a unanimous ballot for the following officers:

Dr. O. N. Meland, Warren, Minn., for President.

Dr. J. Warren Bell, Minneapolis, for vice-president.

Secretary and Treasurer, as formerly, Dr. Donald Daniels, Minneapolis.

The motion seconded, and carried.

Dr. H. W. Jones then called from the floor for a few words from Dean Lyon, our guest. Dr. Lyon reported that no reply had yet come from his application to the Rockefeller Foundation. He stated that the problem of medical care was now one of distribution of the available men, possibly through socialization of medicine.

The President, Dr. O. N. Meland, appointed the following men to fill vacancies occurring in the Advisory Committee. These men are to serve for a period of three years:

Dr. S. P. Rees., Minneapolis.

Dr. E. L. Tuohy, Duluth.

Dr. Paul B. Cook, St. Paul.

Dr. Carl O. Estrem, Fergus Falls.

Medical Representative at large, Dr. S. E. Sweitzer, Minneapolis.

J. WARREN BELL, M.D.

#### Drug Stock for Sale

Minnesota physician desires to dispose at once of his nearly new drug stock at half cost price. Address 158, care of this office.

#### Locum Tenens or Large Country Practice Wanted

I desire a position to do substitute work or will take over a country practice if the field is a large one. Address 157, care of this office.

#### Practice for Sale

General practice in northwest central part of Minnesota, in town of 600. Prosperous farming and dairying community, with no competition. \$6,000 cash practice last year. Will sell for price of equipment. Good reason for selling. Address 159, care of this office.

#### Wanted, An X-Ray and Laboratory Nurse

Position open in new modern Tuberculosis Institution in Northern Minnesota; excellent opportunity for one thoroughly familiar with x-ray technique and general laboratory methods, also to assist in heliotherapy. Complete maintenance at hospital. State salary desired, references, and when available. Address 156, care of this office.

#### Physician Wanted

Reliable physician in a Northern Minnesota town of 375 inhabitants, about 3,000 people in community. Physician's territory much larger, including five villages and districts. Nearest competition 22 miles North, 47 West, 45 South, none East. Excellent dairying and farming district. Good office and residence quarters available. Good man can run receipts to \$5,000 a year in six months time. Village and townships health officer business guaranteed to resident physician, which amounts to about \$900 per year. Applicant must furnish references. Address 154, care of this office.

# THE JOURNAL-*LANCET*

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 23

MINNEAPOLIS, DECEMBER 1, 1924

Per Copy, 10c  
A Year, \$2.00

## SOME ASPECTS OF CARDIAC DIAGNOSIS AND TREATMENT\*

BY CLARENCE J. McMULLEN, M.D.

CHICAGO, ILLINOIS

It is my purpose to summarize some of the recent ideas and new thoughts regarding heart disorders, their diagnosis, prognosis, and treatment. Much progress has been made in the last decade in heart study, due to various factors. We owe much to Sir James Mackenzie, of England. Working alone in general practice, he kept accurate records of his heart cases, used the polygraph, and, in summarizing his years of observation, he presented many new facts to the profession. The electrocardiograph, with its accurate tracings, was another stimulus. Thomas Lewis, Mackenzie's associate, advanced the electrocardiographic work, and his books are the most complete texts in this work.

Proper cardiac management is not possible without accurate, complete diagnosis. Formerly diagnosis of the valvular lesion was sufficient. Lewis, of England, and P. D. White, of Boston, have recently emphasized the importance of including in our diagnosis—

1. Etiologic diagnosis—detecting the cause.
2. Structural diagnosis—noting the pathologic changes.
3. Functional diagnosis—determining the abnormality of function.

The etiologic diagnosis is of great importance because of its bearing on prognosis and treatment. The etiology can usually be elicited, and it is much better to begin our diagnosis with

specific terms, as "rheumatic heart disease," or "syphilitic heart disease," or, if the etiology is unknown, to specify under "heart disease of unknown origin," all facts which portray to the reader accurate important information. For practical working purposes all the etiologic types of heart disease may be divided into nine groups. In order of their frequency I shall briefly enumerate these causes:

1. *Arteriosclerotic heart disease.*—This makes up the large percentage of cases in individuals past 50, and frequently found in those between 40 and 50. The narrowing of the coronary arteries with subsequent impoverishment of nutrition of the myocardium results in chronic myocardial degeneration, auricular fibrillation, angina pectoris, and subsequent heart failure.

2. *Rheumatic heart disease.*—A large group, usually found in younger individuals or even in very young children. This group includes those lesions resulting from acute rheumatic fever; also those hearts due to tonsillar infections and chorea, which produce the same type of cardiac damage.

The prevention of rheumatic heart disease is an important problem and there is much hope for the future. Recent investigations have disclosed the frequency of multiple rheumatic hearts in the same family. Evidence is now being sought to prove the importance of isolating of rheumatic fever patients, and it is possible that in the future we shall have fewer rheumatic hearts, just as

\*Presented at the Sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.



we are reducing our tuberculosis cases by isolation. Another important aspect of rheumatic heart disease is the necessity of recognizing the subacute infection which goes on in the heart valves with the patient up and about. This is especially seen in the children whose only complaint is slight lassitude, failure to gain in weight, with aching pains here and there. These children develop marked stenosis of the mitral valve without any distinct acutely swollen joints. Proper recognition of these cases, with rest in bed, tonsillectomy, and removal of foci of infection, plus active salicylate therapy, will reduce the damage to the heart.

3. *Hypertension heart disease*.—This is the usual "large" heart found in individuals past 40, the result of heart strain due to the prolonged attempt of the heart to carry on an efficient circulation against a high blood pressure. This hypertension may be either that associated with true nephritis or the so-called "essential hypertension," in which no kidney lesion is found.

4. *Thyroid heart disease*.—This is the result of prolonged tachycardia due to thyroid intoxication. The heart enlarges, and later auricular fibrillation ensues, with heart failure of the congested type. Digitalis is of great assistance in these cases in which auricular fibrillation has developed. It has no effect upon the tachycardia during the active toxemia. The prevention of this cardiac damage depends upon early treatment of the thyrotoxicosis, with reduction of the toxemia and also the heart rate.

5. *Syphilitic heart disease*.—This manifests itself principally in affections of the aorta, aortic valve, and coronary arteries.

6. *Nervous heart*.—Frequently called "the effort syndrome" or "neurocirculatory asthenia." This condition was frequent in the army in individuals exposed to the worry, emotion, and increased effort of army life. It is very common in civil life and is usually mistaken for organic heart disease. Primarily a functional disturbance of the nervous system, these patients have more symptoms and apparently more discomfort than those with true organic disease. It is never fatal. The physician's accurate diagnosis and recognition of this condition with proper assurance to the patient that his ailment is harmless starts him on the road to recovery. Graduated exercises and proper supervision of the individual's general nervous system complete the management of these cases.

7. *Diphtheritic heart disease*.—This occurs during and after diphtheria. Usually an acute myocarditis, frequently resulting in heart block

and occasionally sudden death. Early free use of antitoxin assists in preventing this affection.

8. *Congenital heart disease*.—This is not common and is usually early recognized in childhood.

9. *Other rare heart infections*.—Such forms seen in tuberculosis, staphylococcus, pneumococcus, streptococcus, gonococcus, and meningococcus.

Thus I have enumerated the entire group of heart diseases, classified etiologically. The practical application of such a scheme is best illustrated by citing a case. A patient, 40 years of age, presents the typical findings of an aortic insufficiency; his past history reveals a syphilitic infection. He has precordial pains occurring in severe paroxysms and radiating into the arms. His pulse intermits every fourth or fifth beat. Our diagnosis according to our scheme of classification is recorded:

Etiological—Syphilitic heart disease.

Structural—Aortic regurgitation.

Functional—Extrasystoles of ventricular origin. Heart failure of the anginal type.

How much more this means than the usual diagnosis found in our hospital records which usually read: "Aortic regurgitation" or "extrasystoles," etc. Such a system of accurate classification of heart cases will simplify our work and clear up much of the obscurity among physicians regarding heart disorders.

#### FUNCTIONAL DIAGNOSIS

The abnormalities of function is a live topic to-day, and perverted actions of all the organs are being carefully observed. These functional abnormalities of the heart have been intensively studied in the last fifteen years. The graphic records furnished by the polygraph and the electrocardiograph have been of invaluable assistance in this work.

The functional heart disturbances are:

1. *Heart failure*.—This term is used to include disturbances which give evidence of failing heart muscle. There are two types:

a. The congestive type.

b. The anginal type.

2. *Changes in rate and rhythm*.—The principal abnormalities of rate and rhythm are:

a. Sinus arrhythmia.

b. Premature beats.

c. Auricular fibrillation.

d. Auricular flutter.

e. Paroxysmal tachycardia.

f. Pulsus alternans.

g. Heart block.

Each of these functional abnormalities has its

significance, both from the prognostic and the therapeutic standpoint.

Of especial interest is the pulsus alternans, or alternating pulse. In this condition every second beat is weak. It is easily recognized and well worth looking for. It is an evidence of grave heart disease affecting the myocardium, as shown by the fact that practically all cases revealing this condition have died within two years. It is recognized in two ways:

1. By the blood-pressure apparatus. When taking the systolic blood pressure, exhaust the air from the constricting cuff very slowly, listening cautiously for the first sounds to come through. At this point we catch the alternating pulse. Every other beat comes through; i. e., only every second heart beat is strong enough to come through. As we gradually exhaust more air the other beats come through.

2. The other method is by radial tracings in which every second wave is a small wave.

#### HEART FAILURE

The general conception of heart failure is the so-called "broken compensation." This is one type. There are, however, two outstanding clinical types of heart failure:

1. The congestive type.
2. The anginal type.

The congestive type with congestion in all the viscera, in the lesser degrees with pulmonary congestion, with basal râles found over both lowers, to the extreme type with extensive edema of the legs, back, hands, etc., seen in the later stages.

The anginal type is an extremely important group which unfortunately, is often overlooked. These are the patients with heart pains. Anginal pains are common in arteriosclerotic and syphilitic heart disease. The distribution is often atypical, and, instead of being the usual type with pain down the arms, it may be referred to the back, epigastrium, the neck, or the opposite side of the chest. These cases are just as truly cases of heart failure as the edematous case. This is shown by the frequency with which they are found dead without any one suspecting that they were near the danger point. Early recognition of this type of heart failure with proper advice as to habits, diet, and proper medication will add many years to their lives.

#### TREATMENT

In discussing the treatment I shall simply state some of the outstanding recent ideas of practical value. We must realize that the treatment of

heart disease is not as hopeless as most physicians believe. Of primary importance is accurate diagnosis, including the etiologic.

Our first step is to remove the etiologic factor when possible. For example, in the arteriosclerotic heart it is true that most of the underlying causes are not accurately known, and some that we do know, such as heredity, cannot be changed. Nevertheless, we may postpone the onset of heart failure by modifying the mode of living, hours of work, nerve strain, and diet, all factors of importance.

Rheumatic heart disease may become a preventable disease. If we can determine more definitely that rheumatic fever is contagious, then isolation of the patient may save other persons in the same family. Early treatment of rheumatic fever with salicylates to the point of saturation shortens the course of the disease. It is advisable to continue the salicylates for long periods after the active symptoms have subsided. The salicylates are not specific, but they do apparently make the organism of rheumatic fever less harmful. Tonsillectomy, when the tonsils are diseased or where the past history indicates frequent infections, as well as removal of other foci of infection, prevents many cases.

The prevention of syphilitic heart disease depends upon early efficient treatment of the syphilis at its onset. The spirochetes invade the myocardium early, and this is another reason for early recognition of the syphilitic infection and active treatment. After the disease of the heart and aorta is well established, antisyphilitic treatment is not as helpful as we might expect. The extensively damaged syphilitic heart responds but slightly to antisyphilitic treatment, although it undoubtedly prevents further damage occurring. Salvarsan must be used cautiously and in small doses, as some cases are apparently aggravated by intensive salvarsan therapy. Mercury and potassium iodid are the stand-bys in this group. When heart failure of the congestive type occurs in this type, digitalis has less effect in this group than in any other. In other words, when the syphilitic heart begins to fail it portends a serious outlook.

Of the drugs used to stimulate the failing heart, there have been hundreds advised and used. Close studies have revealed the uselessness of most of them and the virtues of few. It is the old story of better results being obtained by using a few drugs properly and accurately than with many in a haphazard way.

Digitalis stands out above all others as *the* drug. It is indicated in all cases of heart failure



of the congestive type. The results are most startling and good in the cases associated with auricular fibrillation; i. e., the complete irregularity of the pulse. Some men even contend that it is only useful in cases of this type. However, it is indicated and of service in all cases of heart failure of the congestive type.

Digitalis is a poison, large enough doses causing death. About one-half the amount necessary to cause death usually induces toxic symptoms. The best therapeutic effect is obtained with the body saturated with digitalis; i. e., the therapeutic dose approaches very closely to the toxic dose. Luckily, the toxic symptoms occur long before a sufficient amount is taken to cause death; i. e., about one-half the amount. Our problem, then, in digitalis therapy is to give just enough digitalis to approach the toxic dose, as near as possible, without producing the toxic symptoms, or at least as few of them as possible. We are now able to do this. Digitalis is carefully standardized before being sold. Each preparation is tested on frogs or cats, and unless the leaf is of sufficient strength to meet the standard requirements it is discarded. Thus, a standardized digitalis leaf or tincture is of a definite strength, and we can compute the amount required for each individual patient. The usual requirement is gr. 1.5 of a standardized digitalis leaf for each 10 lb. body-weight. This is the amount required for saturation. Thus a 150 lb. patient requires 15 by 1.5 or 22.5 gr. of digitalis to digitalize. This is usually given in two or three days. In urgent cases, however, it is possible to give it all in a few hours, although there is some danger of causing vomiting.

Usually the clinical improvement is marked and is coincident with complete digitalization with the figured dose. The next step is to maintain this saturation, and it is here that many physicians fall down. Digitalis is excreted from the body at the approximate rate of gr. 1 to 1.5 daily, and this amount must be given daily, for weeks, months, or years as needed.

Patients vary slightly in their excretion rate, and we must vary our dosage a little. Some require gr. 0.5 and some gr. 1 daily to maintain saturation. It is necessary to know the toxic symptoms of digitalis, such as anorexia, nausea, vomiting, slow pulse, coupling of beats, headache, diarrhea. Keep the daily dose sufficient to maintain the slow rate and diminish the dose when these appear. The anorexia often precedes the nausea for a day or two. Its recognition, with smaller dosage, may avoid the nausea and vomiting.

Strophanthus is a powerful heart stimulant. It is a dangerous drug and must be used with caution. Its dosage cannot be figured as accurately as that of digitalis. Digitalis will do anything that strophanthus will do, and it is safer. Strophanthus absorption from the gastro-intestinal tract is very variable. Its use following digitalis is extremely dangerous, especially when given intravenously. Many patients have died from its emergency use intravenously in individuals already partially digitalized.

Strychnin is a nerve stimulant, and beyond its general stimulating effect on the nervous system it seems to have no distinct effect upon the heart.

Atropin paralyzes the vagus nerve and is of value in some cases of heart block.

Adrenalin is often of temporary assistance by constricting the peripheral vessels and is useful in shock.

Nitroglycerin in doses of gr. 1/100 is of great value in relieving the pain of angina pectoris; a gr. 1/100 tablet placed under the tongue is rapidly absorbed, and its effect is almost instantaneous. Amyl nitrite pearls are also of value in the same condition.

Quinidin sulphate is valuable in certain cases of auricular fibrillation, especially in individuals in whom the irregular heart action causes great anxiety and distress. It must be used with caution and in selected cases. It is dangerous if used without caution. It restores normal rhythm in about 50 per cent of cases of auricular fibrillation. The longer the duration of the fibrillation the less apt to restore normal rhythm.

Diuretics have a place in heart therapy. Where the edema fails to disappear with digitalis we resort to diuretics, such as calomel, diuretin or theocin. Usually the relief is temporary in cases where digitalis fails, but they at least give relief from the discomforts of marked edema.

The remaining therapeutic measures are important, but they need only be mentioned. Sleep is essential. Simple drugs, such as the bromids or chloral, are first used and later codein or morphin. The diet should be small meals, repeated four or five times daily, rather than the usual two or three heavy meals.

In concluding I wish to emphasize the following points:

1. The importance of complete diagnosis, etiologically, structurally, and functionally, as an aid in prognosis and treatment.
2. Heart failure occurs in two types: The congestive and the anginal, and we should learn to recognize each type.
3. Digitalis is a powerful heart drug and, if

used effectively, restores many cardiac invalids to duty. Use it to the point of saturation and maintain the saturation by adequate doses.

4. *Strophanthus* must be used cautiously.

5. The cardiac cripple may be greatly benefited by proper diagnosis and management.

#### DISCUSSION

DR. ALFRED M. RIDGWAY (Annandale, Minn.): The diagnosis of heart lesions has been very difficult for most of us. However, we should not make mistakes in some of the more common forms because an early diagnosis is a life-saver.

One of the early symptoms I have noticed in patients coming to my office is shortness of breath on exertion. Also they have palpitation, precordial discomfort, lassitude, general muscular weakness, and dizziness. As time advances they complain of frequent attacks of dyspnea; there is edema of the hands and ankles; they are unable to work or attend to any kind of business, and they are tired. On questioning them we find a past history of infection, either tonsillitis, diphtheria, rheumatism, or especially the "flu."

As to syphilitic heart troubles: I think the symptoms come on more rapidly and are more pronounced in character than in other heart diseases.

In reviewing my experience in heart cases, it seems to me that most of the cases can be divided into two groups: Acute dilatation, with or without hypertrophy, in the young; and chronic dilatation without hypertrophy in the old. These cases of dilatation, with or without hypertrophy in the young, will in most instances get better if the focus of infection is removed, and the patient is put to bed for a considerable length of time. For the other class of cases, occurring in the old, the outlook is not so promising, although with limited physical and mental work and the use of heart tonics they will usually live for a number of years, enjoying themselves. We must always be on the lookout for chronic interstitial nephritis, as most of these patients have it, in which case a great many of them suffer from uremic dyspnea, which resembles a cardiac asthma and is one of the most difficult things to relieve and may be confused with bronchial asthma. Also bronchial asthma may easily be confused with uremic dyspnea. To differentiate between uremic dyspnea, cardiac asthma, and a bronchial asthma is not difficult if a careful examination is made. In this climate a bronchial asthma cannot be cured, while in cardiac troubles of this type, if we begin treatment early, we can do the patient a great deal of good.

I have had but few cases of syphilitic heart disease, and, really, the results of treatment have been very unsatisfactory, and they have died very suddenly and without any special symptoms to warn them of impending danger. Most of the patients with continued heart trouble, especially when old, have developed a dilated heart, and in the aged it is very unusual to get a hypertrophy accompanying it. Young people frequently have an infected heart, which will dilate, and there will be a pronounced mitral murmur. I particularly recall one case of this kind, that of a man who was in my employ.

He developed an acute inflammatory rheumatism with dilated heart and endocarditis, so that, when I sat several feet from his bed, his heart was so musical I could hear it very distinctly, and I thought his time was short. I kept him in bed for four months, giving him tonics and light doses of digitalis. It is not wise to give large doses in a case of acute infected heart. This fellow improved wonderfully, the infection ceased, the murmur disappeared, and he is well to-day.

Another case occurring a number of years ago was that of a young woman I was called to see. She had anasarca with mitral insufficiency. She was unable to lie down, and they kept her in a semi-sitting position. I put her on diuretics, diaphoretics, and cathartics, but she continued to fill up with fluid. She finally developed ascites, there was fluid in the pleural cavities and she was cyanotic. The prognosis was grave. I made incisions below the ankles to permit drainage, and then she commenced to improve. In a short time she had drained several quarts of water. She made a complete recovery, lives in a neighboring town, has three or four children, and is perfectly well, although it looked like a hopeless case. I could cite other cases of the kind. In my experience, treating heart trouble in the young is very satisfactory. We first get hypertrophy, but after a time the heart contracts and reduces to normal size, there is good circulation, and the patient makes a very satisfactory recovery. That is not true in the aged, in whom we get a dilated heart. These patients live for a long time, as a rule a burden to themselves and frequently to the family or friends. They have shortness of breath, edema, kidney trouble, etc., but in some cases these symptoms disappear, and they live for a long time.

In treating heart disease in the young I feel there is a big field for us, and we should not become discouraged.

There is another condition by which we can learn a great deal in regard to the heart action and that is the rapid heart. I do not know of any symptom more reliable in early tuberculosis than the rapid heart beat. This symptom also appears early in hyperthyroidism and neurasthenia. On the other hand, some individuals normally have a rapid heart. I had a man in my home town who never had a pulse below 120. Otherwise he was normal. As a rule we can depend on finding a rapid pulse in tuberculosis, Graves' disease, and in neurasthenia.

We do have pain in some of these cases, and occasionally pain is the only symptom in patients who are advanced in years, for example, angina pectoris. What is surprising to me is the way nature takes care of these cases, and how the patient gets over this anginal heart trouble. I have in mind three or four such patients who several years ago were not able to walk across the room, pump a pail of water, stoop over, or listen to an exciting story, without having a severe attack of angina pectoris, but who are now able to do a hard day's work.

The cases of heart trouble that have terminated in death very suddenly have been in the advanced stage of acute dilatation. I presume these people died suddenly from over-exertion of the muscles of the heart. To illustrate: One day last summer the "Soo"



people were entertaining themselves at Annandale, and a feature of the event was a 300-yard race in which five individuals took part. One man fell just as he was finishing the 300-yard dash. He was covered with cold and clammy perspiration and was very pale. On examination I found that his pulse was very weak, rapid, and small in volume; his heart had dilated—the apex was nearly two inches to the left of the nipple—and was hypertrophied. I kept him quiet for some time and administered digitalis. I do not know whether the drug had any effect, but due either to the attempt to digitalize him or to something else he recovered sufficiently that he was able to go back with his party in the evening. He probably had a dilated heart before the race.

Progress of these different heart diseases depends largely on the cause of the trouble and the age of the patient.

Treatment of the enlarged heart is absolute rest, carefully looking after the diet, prescribing food that is easily digested, and seeing to it that there is proper elimination. Perhaps in ordinary cases—not cases in which we are supposed to give special treatment—we should give small doses of digitalis. Strychnia has done very little if any good and I have discontinued its use. For the older cases the treatment is mostly rest. Young people will make a wonderful recovery if we give them time and rest so that nature can correct the weakened condition of the degenerated cardiac muscle.

DR. JOHN H. RISHMILLER (Minneapolis, Minn.): During the past two years all our Examining Surgeons have taken the blood pressure of all applicants for employment and also of firemen who are promoted to engineers and of brakemen who are promoted to conductors, likewise of all old employes who have attained the age of sixty-five and who desire to be placed on pension or who select to continue in service. A physical examination at present is regarded as incomplete unless accurate blood pressure findings are recorded.

Blood pressure in young individuals may seem to have very little significance, but during the past two years we have had two cases. One was examined by Dr. Carl von Neupert at Stevens Point. G. S., a baggage helper, aged 22, on January 12, 1922, had a blood pressure of systolic, 160, diastolic, 115, and naturally was disqualified. The other was examined by Dr. Gilbert Hendrickson at Enderlin. E. E. H., a locomotive fireman, aged 25, on September 12, 1922, had a blood pressure of systolic 182, diastolic, 96, and was likewise disqualified. It is quite apparent that these men would have cardiovascular derangement with high blood pressure and be incapacitated for active railroad life before they would be fifty years of age.

For some ten years I have had a patient, J. G., aged 67, switchman, who had more or less cardiac embarrassment. About two and one-half years ago he commenced to develop a distinct phase of pulsus alternans. He had difficulty in continuing with his occupation and had to lay off once in awhile, as he stated it, "I am tired out." I gave him, for two or three weeks at a time, every day or every alternate day, iron arsenite hypodermically, which apparently put ginger into him so that he could keep on working. One day after he had arrived home from his work he told his wife that he did not feel

well and then layed down on the couch and died suddenly.

I desire to impress upon the Examining Surgeons that whenever they detect pulsus alternans in their physical examinations they should disqualify the applicant.

During the past few years much discussion and attention has been directed to toxemia affecting the myocardium, leading to sudden death. During the last month three patients, old men, who were apparently good operative risks, died at St. Mary's Hospital following operation. The necropsy was performed by pathologist Dr. William A. O'Brien, for the purpose of definitely determining the unexpected sudden death. Dr. O'Brien came to the conclusion that all three had died from myocarditis caused by low-grade but persistent and continuous toxemia, affecting the myocardium. Dr. O'Brien stated that in looking over the hospital clinical records of these three patients the temperature had not been absolutely normal and there had been some unsuspected and undiscovered mild infection going on, such as stitch abscess, etc. One patient was sitting up and about the hospital and was ready to go home in two days when in the afternoon he suddenly died of apparent heart failure,—toxic heart. The point is this: In a great many of these elder patients with chronic myocarditis death is due to toxic heart muscle—toxemia.

DR. JOHN L. TAYLOR (Libertyville, Ill.): I desire to report a recent case. While working in the yards a conductor, aged 40 years, became suddenly ill and went into the depot. He was almost in a state of collapse and covered with a cold perspiration. A doctor was immediately called who learned that the man had eaten some beans an hour before, and he therefore concluded that the patient had ptomaine poisoning. His temperature was around 100°, and his pulse was a little over 100. The doctor advised that the patient be taken to his home, which was done, and that the family physician be called. The family physician made a similar working diagnosis of ptomaine poisoning. The patient suddenly went into convulsion and died.

The first subjective symptom, as described by the patient, was a severe pain in the neck which radiated down into the chest, and that pain was very excruciating. Being the county coroner, I was called to conduct an inquest. I held an autopsy and then told the doctor that it did not look like a case of gastrointestinal toxemia, and that I could not eliminate the possibility of some heart trouble. On opening the chest the pericardium was found to be distended and stretched just as tight as it could be, and was filled with clotted blood, which I could scoop out by the handful. On further investigation it was found that he had a ruptured coronary artery. The muscle adjacent to the artery was infiltrated with blood, and there was an atheromatous condition all along the course of the artery.

DR. McMULLEN (closing): Referring to the case related by Dr. Taylor, I saw a similar one. It is no doubt true that sclerosis of the coronary artery, as indicated in this man of 40, is usually of syphilitic origin. I think the convulsion was probably due to anemia, which occurs in these cases. I suppose the cause of death should be given as sclerosis of the coronary artery.

## SOME PREVALENT ERRORS IN THE DIAGNOSIS OF APPENDICITIS\*

BY THOMAS MULLIGAN, M.D.

GRAND FORKS, NORTH DAKOTA

Appendicitis is the most common surgical affection in the abdomen. For convenience we may divide it into three classes:

1. Acute fulminating type, which frequently occurs in the first attack and is a real surgical emergency, which will result in early death or greatly increased morbidity if not handled rightly.

2. The acute but less malignant type, which may be an initial condition or a recurrence in a previously diseased appendix. The remarks relative to the former apply to it but with less force.

3. The chronic type, which gives much distress but is not an emergency.

Some reasons for accurate and early diagnosis are as follows:

1. Correct early diagnosis in the acute form will greatly decrease mortality, will be a great saving in human happiness, in human suffering, and, lastly, in an economic way to the family and state.

2. In the chronic form the saving in human life will not loom up so large.

3. The saving in human happiness will not be so great to the relatives and friends as death is often, fortunately, absent from the scene.

4. The suffering, though not so acute, is more dragged out in the chronic case, and life has little of the silver lining for many of those cases. Economically, they are more inefficient.

5. They are apt to be less stable in mind and character and to swell the great mass of the disgruntled and are generally "agin the government." A healthy mind in a healthy body leads to a healthy outlook upon life, and, if given a fair chance, will go a long way to reaching and maintaining world stability.

For the above reasons it is well for us to use the means at our disposal to meet these emergencies efficiently when they befall the human body. Have we the means at our disposal? Yes. Every doctor has whether he is a member of a well-equipped clinic, with a hospital next door equipped with all the modern laboratory methods, x-ray, etc., or whether he is a lone practitioner in a small prairie town.

A few essentials are necessary in both:

1. A personal interest in the patient as a sick human being.

2. A sincere desire to serve, or do your job the best you know how the same as a sincere person in any line will do whether he be a farm hand, a railroad engineer, a nurse, a lawyer, or a preacher.

3. Industry.

4. A systematic examination of the patient. The extent of this examination would depend upon whether there was an emergency in which the time element was all important, or whether the patient could be observed for a day or more without decreasing his chances to life or increasing morbidity.

There are two fundamentals upon which a diagnosis must rest:

First, a written health history of the patient's life. The ease with which this is obtained will depend upon the intelligence of the patient, but with tact and shrewdness it can be obtained in a reasonably short time. As one persists in this history-taking one becomes more expert at it, and it is an excellent mental training. Have you listened to a shrewd attorney interrogating a witness in direct and cross-examination? If so you would have noticed the sequence of the questions like a well-forged chain. It will stand out in contrast with the aimless questioning of the bluffer.

Second, a careful physical examination of the whole body, beginning in a systematic manner with the scalp and ending with the soles of the feet. As one persists in this it is amazing how much easier it becomes, and less of a task. Standardization of hospitals with its requirement of systematic records has contributed much to efficiency in diagnosis and treatment. The doctor alone in the small town has equal accessibility to these means as anyone else. He can keep some record whether in book form or card index form, which perhaps is the better way, in his own office. It is a great time saver, and once a history is well taken you have it for all time. You will add a few additions as the interval between consultations elapses; you will have your physical record to compare the present findings with the last ones. You will have your therapeutics recorded. These tend and should go to promote confidence in your client, and will add immeasurably to your efficiency and satisfaction.

Any doctor can have a small laboratory for

\*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.



chemical urinalysis and for all the simpler blood tests, as for hemoglobin, red and white counts, etc. For more complicated analyses the State and private laboratories are available. But laboratory methods, *x*-ray, etc., are but aids in diagnosis, and will always remain as such. They are often the more spectacular, especially the *x*-ray, and the lay mind is inclined to attach too great an importance to their efficacy. How often have we heard a patient say, "Can you turn on the *x*-ray and take a look at my appendix and see if it is all right?" We know this is pure bunk, but our actions are often controlled by public opinion.

We do not wish in any way to disparage the value of laboratory methods, *x*-ray, etc.; they have been a natural evolution in the progress of medicine; we would not give them up. Nevertheless, they are not short cuts and easy methods in diagnosis, but aids to that end. The history, the physical examination, and the proper evaluation of such, depending upon the experience and judgment of the examiner, will always remain the eternal guiding principles in diagnosis.

The general practitioner is the man who first sees the great majority of the cases of acute abdominal lesions, and he should realize, and I believe he does in the majority of cases, that upon his words and advice may hang the future welfare and even the life of the individual. Therefore I would have him understand he is not handicapped by not having all the modern improvements at his beck and call. He has his God-given weapons of the five senses, which he can use to play upon the human body as search lights which will be more revealing than the most powerful *x*-ray in the world. He can cultivate his judgment by experience and supplement it with that of his colleague from the neighboring town, or even the specialist from the city clinic. He will find, as the late lamented Dr. Jacobi, of New York, once said, "It is the man who can box the craft, and who has the broad general outlook in medicine who will grow in well-balanced form, as the lone tree on the landscape will grow more beautiful in proportions than the one that has to share the heat, light, and nourishment with its kind."

I have been talking about matters which pertain to diagnosis in general. I shall endeavor to illustrate what I have been saying by applying it to the subject in hand,—some prevalent errors in the diagnosis of appendicitis, the acute first. I shall not attack it from a differential diagnostic standpoint. We all know there are certain acute conditions in the right lower abdominal quadrant which simulate acute appendicitis, such as acute

salpingitis, ectopic pregnancy, twisted ovarian cyst, obstruction of the bowel from adhesions, thrombosis of the mesentery or omentum, ureteral colic, intussusception, etc.; in the right upper quadrant, acute cholecystitis, hydronephrosis, renal calculus, pyelitis, duodenal perforation, etc.

The majority of these conditions, with some exceptions, are surgical emergencies, and the indication would be an incision in the right rectus that would give access to the upper and lower abdomen, through which an exploration could be made and the necessary work done. When the time element is not imperative, all these cases could be studied and treated expectantly for a time, with great advantage to the patient, as in cases of pus tube, acute pyelitis, etc.

All these acute abdominal conditions have certain subjective symptoms in common, such as generalized abdominal pain, vomiting, shock, usually an increase in the pulse, and, later, a rise of temperature, etc. These symptoms being common to nearly all of these conditions are not of great diagnostic value. Of them the character of the pain would be most useful. There are two objective symptoms, local tenderness and rigidity, which are of far greater value in arriving at a diagnosis of any acute abdominal lesion than is pain and apply with especial force to my subject, namely, some prevalent errors in the diagnosis of appendicitis.

I shall first take up pain in appendicitis, and then local tenderness and rigidity, and illustrate with cases their relative importance in diagnosis.

There are, of course, various degrees of pain, depending upon the sensitivity of the patient, the position of the appendix, and the degree of inflammation and stretching of the wall of the appendix. In the severe cases the pain is almost invariably felt in the epigastrium, although I am free to admit that some of the very worst cases of the streptococcic type which leads rapidly to gangrene and peritonitis may not cause much pain, due, I think, to the fact that in such cases very little pus is found and, hence, there is not much liquid, if any, to cause stretching of the appendix wall, resulting in muscular spasm of appendix. In the milder cases of the more sub-acute type the pain is seldom felt above the umbilicus, but spreads across to the opposite side.

In the post-cecal cases the pain is frequently felt only in the flank and through to the back, the height to which it extends depending upon the length of the appendix and the structures to which it is adherent. The pain being felt at these localities remote from the appendix almost always misleads the layman as to the cause of

the pain, particularly when felt in the epigastrium, as it is mistaken for gas on the stomach or acute indigestion, and hot drinks, physics, etc. are given, and valuable time and worse than wasted efforts lost.

The second great clinical group of symptoms of appendicitis are tenderness and rigidity and it is on these symptoms more than on all others upon which you can hang a diagnosis. Tenderness always in any part of the body coincides with the lesion; if you have an infection in the finger the tenderness is right there, if at the apex of a tooth the tenderness will be manifested by tapping on the crown of the tooth and transmitting the vibration to the apex of the root. The same holds true with the appendix. Pressure over the inflamed organ will produce pain, and the muscles will increase their rigidity to protect the inflamed appendix. The degree of tenderness will also depend upon the severity of the inflammation and the position of the appendix. When it is placed well forward near the anterior parietes and the inflammation and tension in the appendix are severe, the sensitiveness will be exquisite and the lightest touch will elicit pain and marked rigidity. When the appendix is postcecal, the tenderness will not be nearly so marked, and greater pressure will be required to bring it out.

CASE 1.—Mrs. B., aged 30.

Past history: Childhood diseases, negative. Menses began at usual age; were very painful, did not appear again for about one year. Have always been painful for first day. Five years ago began to have some pain in the right side, which was increased by riding. Married in November, 1919.

Shortly afterward she was taken with severe stomach ache, lasting from fifteen minutes to one hour. She gradually became worse until she was semi-invalided, having to remain in bed part of each week. From December to April she was seen by a doctor at her home about twice a week. The pains were felt most severely under the right lower ribs laterally. Her husband asked the doctor if it was appendicitis, and he said, "No, the pain is too high." On April 17 she had her hardest attack. She was told she had pleurisy, inflammation of the stomach, and rheumatism of the abdominal wall. She was advised to take turpentine enemas and keep on heat. She came to see me Friday from a neighboring city with hospital facilities.

The physical examination was negative except the following findings in the abdomen: On pressure on the appendix she said I increased the pain under the right costal arch, and there was a definite rigidity on moderate pressure at this point. She came on the noon train. I sent her to the hospital, and had intended at least to give her till next morning for observation. Toward evening the leucocyte count was definitely increased, temperature up to 100° plus, and some increase in the distress and

pulse rate. I operated in the late afternoon through a vertical incision through the outer border of the rectus to give access both ways, found a post-cecal appendix showing acute inflammation, its distal half covered with plastic exudate and under some tension. The appendix was removed and the abdomen closed without drainage. Recovery was uneventful.

Further delay might have been fatal, at least the morbidity would have been increased had drainage been required.

In reply to a letter a short time ago, she tells me that she has gained from 130 to 171 pounds and has done no doctoring since April 1920.

CASE 2.—L. W., aged 21. At six years of age he had a severe attack of peritonitis, and was given up by three doctors. He was confined to bed for two months and invalidated for nine months. He has never been very well. For the past one and one-half years he felt pain in the left side just below the ribs, in a spasmodic fashion. He was very ill for three days before I saw him.

I saw him in my office on Saturday, November 3, 1923. He had been suffering from accentuated abdominal distress since the previous Wednesday. He was under medical supervision and was advised that he had a floating left kidney which would necessitate removal according to his story. He seemed quite sure of his ground about the diagnosis and advice, but I am inclined to think perhaps a nephrotomy rather than a nephrectomy was in the mind of the medical adviser. He complained of his pain on the left side about three inches to the left of and a little above the umbilicus.

Personal examination: Head, neck, chest, and heart, negative. Abdomen very moderate distention, no definite areas of dullness. Kidneys, not palpable; no increased flank dullness. Pressure in the appendix area caused quite marked sensitiveness, and when the pressure was made in the appendix area he said it produced the left-sided pain above mentioned. Urinalysis: color, straw; reaction, acid. Sp. g., 1012; albumin, trace; sugar, negative; acetone, negative; casts, hyaline, none; granular, none; R. B. C., many; leucocytes, few; pus, few.

Blood: leucocytes, 12,500; temperature, 100.° Pulse, 90.

Diagnosis: chronic appendicitis with acute exacerbation.

Findings on operation: Appendix post-cecal, curved upon itself, and bound down with adhesions and very acutely congested. Appendix was removed, and the abdomen closed without drainage. The patient was very nervous and anxious for the first day or two and complained of much gas pain, which was easily controlled by morphine and hot stupes. He left the hospital on the 13th feeling well. In answer to a letter a short time ago, he gave the following health report: Appetite, very good; bowels, regular; has increased his weight ten pounds. Has had no pain during past two months. He feels well and strong.

These two cases are prototypes of not a small number which have come under my observation in which the presence of pain on the left side, low or high, or far up under the right costal, or some other unusual situation, has definitely



caused errors in diagnosis. When I support this statement with corroborative evidence of such a master mind in the domain of medicine and surgery as Dr. Charles H. Mayo it is entitled to serious arrest of one's attention. Dr. Mayo says that acute or chronic abdominal lesions are often attributed to the appendix: thus, "in one-third of the cases of stones in the left ureter, associated with colics, the appendix is removed without relief, and in approximately two-thirds of the cases of stone in the right ureter the appendix is removed ineffectually." This to my mind was a remarkable statement in view of the highly developed mechanistic methods, such as cystoscopy, ureteral catheterization, and *x*-ray, which are available to-day for diagnosing lesions of the urinary tract. I can understand why a wrong diagnosis of appendicitis in ureteral stone should be made twice as often on the right as left because the tender point might correspond closely to the appendix area. But such reason cannot be given for the mistaken diagnosis of left ureteral colic unless the proper evaluation on the clinical evidences of pain and tenderness were not properly made. I will grant that the tenderness over a ureteral calculus even where the calculus was rough and causing some trauma and local inflammatory reaction would not usually be so marked as in an acutely inflamed appendix. Nevertheless there would be tenderness and reflex rigidity of the overlying muscles, simulating the rigidity from appendicitis. But this local tenderness and rigidity would be present in left ureteral calculus, as well as in right. Then why was the appendix removed twice as often when the calculus was on the right? I take it because we are accustomed to palpate carefully for tenderness on the right and hence found it, but are not accustomed to look for it in the left lower quadrant and missed it. Hence this remarkable statement of Dr. Charles Mayo proves in an indirect way the great clinical value of painstaking tactile examination for a local tender point. I hope I have made my deduction understandable. Of course, we realize other confirmatory evidences, such as the leucocyte count, the urinalysis, the *x*-ray, the ureteral catheter, should help very materially in this instance to diagnose the appendix lesion from the ureter lesion, but as I said in the beginning, my effort would be to place emphasis on the great value of the local tenderness in spotting a lesion, rather than in depending upon pain.

In further support of the value of a tender point in diagnosing abdominal lesions let me quote Dr. Hugh S. Wilson, of Minneapolis. He says, "The one greatest help in the differential

diagnosis between chronic cholecystitis and duodenal ulcer is in the palpation of a definite tender point," and he describes the technic of finding it in the gall-bladder.

#### CHRONIC APPENDICITIS

Time will not permit my going into this form as much as I would like. I shall but mention one error in its diagnosis, namely, confusing it with neurasthenia. Dr. Mayo says in his article previously referred to, that 8 to 24 per cent of all appendices removed are ineffectual in relieving the patient. I believe a considerable percentage of those persons unrelieved would come under the neurasthenic class. Many of you will remember two profound and excellent papers presented at our annual meeting last year in Grand Forks by Dr. Hugh S. Wilson, of Minneapolis, and Dr. Rogers, of St. Paul. Dr. Wilson, in his paper, a study of one thousand consecutive cases presenting gastro-intestinal symptoms, enumerated 98 causes of which appendicitis was first with 127 and neurasthenia ninth with 27. You see it stood far up in the scale, causing nearly one-fourth as many abdominal symptoms as appendicitis.

It used to be thought that the benefit of the mental suggestion in the neurasthenic was sufficient warrant for surgery in some cases. The fallacy of this idea has been proven by experience. The suggestion with the attendant rest after operation proved in many cases to give temporary relief only to have all the old symptoms return in intensified form. The fact that they had been relieved temporarily planted the suggestion of surgery in their minds, and it has not been unusual to have those poor people turn up looking for a relief for the same old aches and pains, to find anywhere from one to five abdominal scars. This class of cases has thrown much discredit upon surgery and helped to swell the ranks of the cults.

The question is, How can this be avoided? I have no panacea for it, but if ever a thorough painstaking history and physical examination was necessary it is just in such cases. I will admit that a history is most difficult to get from themselves. They lack concentration and sequence of thought and this alone will give us a hint. Ask one straight question and they will babble on like the endless brook. With experience you will learn to spot them. The main practical point I have found useful in palpating for a tender point over the appendix in this type is this: they are apprehensive and expect to be hurt, and will show equal tenderness over the whole

abdomen. Keep on getting their muscles and their reflexes acquainted with your fingers, and keep diverting their attention by questions. If it is only neurasthenia they will soon have forgotten all about your pressure even though it is deep; if there is a real lesion, the reflexes will refuse to be thrown off and the tenderness and rigidity will be in evidence over the sympathetic ganglion about two inches to the right of the umbilicus and they will remind you at the next visit that that side bothered them considerably some days after your examination.

CASE 3.—A typical example of useless operations on the neurasthenic.

Mrs. J. H., aged 29. Married, no children, no miscarriages. Father and mother living. Father well, mother nervous, been several times at hospital, and, had some operations; has nine brothers and sisters, one brother very nervous.

Past history: No children's diseases. Menses began at 13, regular, not much pain.

Present complaint: Began eleven years ago, was working hard in cook car and was sweating, drank freely of cold water, developed pains and become unconscious, and remained so for two days. (Sounds to me like a typical hysterical attack.) After a week returned to work. This was followed by periodic pains high up under the left ribs. Saw several doctors, was advised to have operation for gall-stones and appendicitis. Had gall-bladder removed nine years ago, felt better for a time, but the same abdominal distress returned when she began work. During attacks would usually call a doctor, and receive a hypodermic of morphine. This continued for three years. Then she had the appendix removed and had some surgery on the female organs. Felt better for some months but on resumption of work had a return of the old abdominal trouble. She then went to the Rochester Clinic for three weeks. She was advised that there was no organic trouble, but on her return to work she went into the same rut. A week before I saw her she was in the hospital to have an exploration of the common duct, but she changed her mind, and her attendant frankly advised her that he had done all he could and would be glad to have her consult another doctor.

I saw her at her home in April, 1922. She was apparently in much distress; being in a hurry I gave a hypo of morphine and advised moist heat. I was called again in about a week, found her in great agony, claiming she could not lie on the bed for examination as the pain was too intense. On rather a sharp command to lie down she forgot herself long enough to lie down with a flop: when the mind was diverted one could palpate the abdomen freely using deep pressure, but the moment she became conscious of the examination the muscles would become rigid, and she would complain of pain. She was vomiting some dark stained fluid, and the pulse was rapid. She was removed to the hospital. The stomach was washed out freely with hot saline once. She was given light soups, etc., for a couple of days, then gradually returned to light diet. She was reminded each day in a heart to heart chat that her trouble was mental and not organic, was allowed

to go to her family in the country for a visit of a month or two, was told she might expect some distress in the abdomen again, but cautioned not to get unduly excited, but to rest, apply moist heat and a few other simple rules and it would pass.

It is now over two years. She has had no doctor since except about a month ago when she returned from Minneapolis after nursing a very ill sister for two weeks, had been under strain and lost much sleep. She was in about the old shape but it required only the explanation to her that it was nervousness due to the extra strain. No morphine was given. I have not seen her since. She is a typical example of an emotional patient whose abdominal discomforts have been unconsciously exaggerated into mountains and who has been not only not helped but made worse by surgery, who responded intelligently to a sympathetic explanation of her trouble, whose happiness has been improved, whose usefulness has been restored, and who will not drift into the hands of a cultist with no science but plenty of knowledge of human nature who will explain her ills away with large doses of optimism, and who will make of her a booster for the cults and a knocker for the regular.

Many of the leading medical minds the past few years have had articles on useless operations on the neurasthenics, some of whom are Dr. John T. Rogers, Dr. Hugh Cabot, Dr. Wm. D. Haggard, and Dr. Albert Ochsner.

In conclusion, I do not wish anyone to feel that it was my intention to cast any reflection upon the medical man in the small center, rather I regard him with great respect. He is of the stuff that pioneers are made of. He is building a foundation which will give him a greater perspective of diseases and functions of the human body than the man can ever get who steps from an internship to a specialty, and I would urge with all the emphasis at my disposal that he use and develop his five senses in the examination of his patients and in the diagnosis of disease, and make them take the place of the laboratory and clinic.

I hope my case reports, showing some mistakes in diagnosis, will not be considered uncharitable. I know I have made more than my share of mistakes along similar lines; we do not see our own failures, but we can all learn by the mistakes of others and vice versa.

#### REFERENCES

1. Dr. Charles H. Mayo's article in the August 13, 1924, number of the Jour. of the A. M. A., entitled "The Appendix in Relation to or as the Cause of Other Abdominal Diseases."
2. The article by Dr. Hugh S. Wilson, of Minneapolis, in the October 15, 1923, Journal-Lancet on "A Study of One Thousand Consecutive Cases Showing Gastro-Intestinal Symptoms."
3. The article by Dr. John T. Rogers, of Miller Hospital, St. Paul, in the November 15, 1923, Journal-Lancet on "A Plea for Synthetic Anatomy."
4. The article by Dr. Hugh Cabot, University Hospital, Ann Arbor, Mich., in the March 23rd number of the Medical Clinics of North America, "Those Painful Women."
5. An editorial by Dr. Wm. D. Haggard in the December, 1922, issue of Surgery, Gynecology and Obstetrics, "The Unnecessary Operation."

(For Discussion See Page 605)



## ACUTE APPENDICITIS\*

BY THEODORE BRATRUD, M.D.

WARREN, MINNESOTA

The mortality of acute appendicitis is too high. Many excellent papers pleading for timely and rational treatment appear every year, but their message seems to miscarry. The mortality rate in most of our best hospitals is reported from 5 to 10 per cent. The greatest epoch in the treatment of acute appendicitis after the original paper of Fitz is that of Ochsner, in 1902, in which he pleads for prompt operation in all cases inside of forty-eight hours, and conservative treatment avoiding cathartics and food after the favorable period for operation has passed, and in addition to that the giving of opiates as advocated by Alonzo Clark. The late Maurice Richardson refers to the cases after the forty-eight-hour period as "too late for early operation and too early for late operation."

The late John B. Murphy, quoted by Haggard, states: "It can be laid down as a law that the case of acute appendicitis coming to operation with pus outside the walls of the appendix has not been properly treated up to that time." Haggard,<sup>1</sup> in a report of 1,000 operations states that the cathartic given before operation is the submarine that defeats nature's allies.

It is the writer's conviction that no one can dispute these statements. Ochsner<sup>2</sup> in a personal communication in June, 1924, states, "I have had no deaths in cases which have been operated on in the first twenty-four hours in which cathartics or food have not been given prior to the operation."

The morbidity from mistreating acute appendicitis is large. Delay in prompt treatment is not confined to the country districts or smaller towns. As an illustration, I shall cite three cases observed during 1923:

CASE 1.—Male, aged 27, came under the writer's care on the fifth day of intestinal obstruction with the following history: While in the Navy he was operated on on the fifth day for a perforated appendix. One year later he submitted to another operation for intestinal obstruction, also in a Navy hospital.

CASE 2.—Patient was operated on on the fifth day while in the Army. Two years later he was operated on again in the Army Hospital for intestinal obstruction. In 1923 the writer operated on this young man for acute intestinal obstruction.

CASE 3.—A woman, aged 32, is still an invalid under the writer's care for complications persisting after submitting to four abdominal operations for complications resulting from an acute appendicitis operated upon on the fifth day.

This does not take into consideration the large number of cases suffering from gall-bladder and liver infections following delayed operation. If acute appendicitis treated properly at an early stage is without mortality, why should this high death rate and morbidity continue in spite of the numerous pleas by our leading surgeons for prompt and rational treatment? There are two reasons: First, it is common practice among our patients to take a cathartic for every abdominal pain. Then, if the results are not those desired, a medical advisor is called, and in many cases he adds insult to injury by giving a hypodermic of morphine. This practice is prompted by the fact that many cases of acute appendicitis have no increase in temperature in the early hours after perforation. Another factor that misleads the medical advisor frequently is that the patient suffering from acute appendicitis in many cases has no pain in the early hours immediately after perforation or gangrene. In some cases the initial symptoms are misleading and especially so if, after an acute abdominal pain of indefinite character, a cathartic has been given, and the patient on coming under observation has neither elevation of temperature nor pain.

Education on the same line as covered by the American Medical Association for early recognition and treatment of carcinoma is needed to prevent the practice of giving a cathartic at the onset of every pain in the abdomen.

I shall report the observations on my own cases seen from January 1, 1904, to January 1, 1917. Slightly over seven hundred cases were seen. Many of these were seen and operated on in country homes, so the data are incomplete on some. Of 362 cases which were seen and operated on in the first forty-eight hours, there were no fatalities.<sup>3</sup> These cases present all degrees of pathology, from the acute catarrhal stage to gangrene and perforation with local peritonitis. In this series, there were complications as follows:

In three cases where distension and vomiting persisted to a threatening degree in spite of frequent resort to enemata and gastric lavage, enterostomy was performed under local anesthesia,

\*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

from two to three days after the first operation, by placing a catheter after the Witzel method in the most dilated part of the ileum. Four were re-operated on for fecal fistula. About 3 per cent were re-operated on by the writer for post-operative hernia, and I presume other cases were re-operated on elsewhere. There were a few pulmonary complications, but none were serious.

In the second group or those going over forty-eight hours, approximately 350 were seen. In this group we had 17 deaths. Of these, 7 were moribund on admission and gave histories of a cathartic or cathartic plus morphine before admission. One case was operated on on the fourth day, with a history as follows:

M., aged 42, taken sick on Sunday night with cramps in abdomen. He took a dose of magnesium sulphate. He felt better on Monday afternoon so he went to work, although he was not feeling well. On Tuesday night he began to vomit, and pains returned with increased severity, so about midnight a hypodermic of morphine was given. His pains continued to increase so that at 2 A. M. on Wednesday another hypodermic was given which gave little relief. He was taken to the hospital. The abdomen was rigid, particularly on the right side, and he was suffering excruciating pain. The W. B. C. was 4,000.

Operation disclosed an appendix lying centrally and pointing toward the navel. The tip of the appendix had perforated. The patient died of general peritonitis on the seventh day in spite of a double enterostomy. At no time did he have any elevation of temperature until the sixth postoperative day.

Five cases died of liver abscesses, two in spite of operation.

Four cases died of general peritonitis after drainage.

The balance were kept under Ochsner's treatment with the exception of 17. One of these, a boy of twelve, came to the hospital on the sixth day with acute abdominal pain following tonsillitis. He had extreme abdominal distension which did not respond to enemata and gastric lavage. Enterostomy was done under local anesthesia, and he made a nice recovery. Two years later he returned suffering from acute abdominal pain of three days standing and distension. An enterostomy again relieved his symptoms. To-day he is well.

Three cases had abscesses which were opened per rectum after the manner of MacLaren<sup>3</sup> and were later operated on and the appendix removed.

Five were carried over to successful interval operation by enterostomy plus the Ochsner treatment.

Eight were drained for large abscesses, mostly retrocecal. The majority of the balance returned for successful interval operation.

Reviewing these 700 cases with a mortality rate of 2.5 per cent, it shows a balance in favor of the Ochsner treatment compared with the operative statistics from other hospitals where cases were operated on at all stages.

At this point I shall diverge for a few moments on diagnosis. The writer has found the Rovsing symptom of great aid in differentiating abdominal pain from extra-abdominal lesions. This symptom has proved positive where we looked for it in all cases where the appendix had not perforated. It was also present in many of the perforated cases. We have also noticed the presence of the Rovsing syndrome in cholecystitis and some cases of acute pelvic pathology. In some cases the initial symptom was pain in the epigastrium so that in two cases the first incision was made with a diagnosis of perforated gastric or duodenal ulcer. There were two operations in which the appendix was removed and was found coated with fibrin with a large amount of pus around the appendix, in which it was later found that the patient had a perforated duodenal ulcer. In one case the appendix was removed from a young boy of twelve, who came to the hospital with high temperature and acute pain with tenderness in the right lower abdomen, and a few hours later we found signs of a right-sided lobar pneumonia.

In some of our cases from 1919 to 1924 we deviated from the Ochsner treatment by operating on cases with symptoms of longer standing. The number is too small, but my belief is that the results justify the Ochsner treatment. However, it may be that there is a certain percentage of cases going over the forty-eight-hour period in which the prompt recognition and proper conception of mechanical obstruction or ileus duplex as described by Sampson Handley<sup>4</sup> and its correct treatment may save some of the delayed cases which otherwise would result fatally.

Sampson Handley argues that mechanical obstruction due to local peritonitis causing adhesions of terminal ileum in pelvis is the initial stage of general peritonitis in many cases. In his early cases he performed ileocolostomy to short circuit the obstruction. Many of his patients died. This is a severe procedure on a patient who is already in a serious condition, and I believe that timely enterostomy done with local anesthesia will tide the very ill patient over the danger point. In order to be effective the enterostomy should be done before the obstruction has done so much damage that the distended ileum fails to respond.



## ANESTHESIA

Many of the cases were operated on with local anesthesia supplemented in some cases with gas or ether. A few cases in children were operated on with local anesthesia and nitrous oxide-oxygen anesthesia.

## OPERATION

I shall mention a few points in the operation which I have found of decided advantage. The operation for acute appendicitis may be the simplest, and it may test the judgment and skill of the expert. In our early work the McBurney incision was used exclusively. In later years the incision in the outer edge of the right rectus muscle has been employed in most cases. This offers several advantages:

1. If the appendix is high or in the pelvic position, the incision can be extended as needed.
2. In a perforated appendix in the pelvic position, the incision in the rectus muscle gives easier access to the pathology.
3. It gives a shorter drainage tract for pus in the pelvis. Pus in the pelvis is a frequent and serious complication of the perforated appendix, no matter what position the appendix occupies.
4. It allows easier application of a modified rubber covered Mikulicz's drain placed in the pelvis so as to hold the coils of the terminal ileum out of the pelvis. It permits better strapping of the wound in cases where it is deemed better to strap the wound after the manner of MacLaren,<sup>5</sup> instead of suturing.

As soon as the incision reaches the peritoneum the assistant holds the vacuum pump ready so that it catches the first drop of pus escaping, thus minimizing the soiling of the wound. The pump is gradually advanced to the bottom of the pelvis so that all free pus is removed without sponges. The next step is the introduction of flat Deaver retractors so as to hold the coils of the intestines out of the way, and particular care is taken that no coil of intestine is allowed to protrude. The appendix is located preferably by sight; and, if this is not possible without disturbing adhesions or manipulation of the intestines, it is located and delivered by touch. In pus cases where the walls of the cecum are edematous and friable the base of the appendix is crushed, a catgut ligation applied, and the stump of the appendix carbolyzed, no attempt being made to cover the stump with peritoneum.

## DRAINAGE

It has been our practice to drain every case where a green or black spot shows on the appen-

dix. In every case where pus is present in considerable amounts, a half inch soft rubber tube is placed to the bottom of the cul-de-sac. In all cases where considerable pus is present, no matter what the location of the appendix, there is always some pus in the pelvis. In cases where fibrinous patches are adherent to the coils of the small intestine, a modified Mikulicz's drain, rubber covered, is placed to the bottom of the cul-de-sac in such a way as to hold the coils of the ileum out of the pelvis and away from the pelvis structures. I have found that a rubber glove packed with strips of gauze answers this purpose well.

During a recent visit to eastern clinics, I saw two cases of acute appendicitis which had been operated on about the fifth day and were brought to the operating-room on the third postoperative day with symptoms of peritonitis or obstruction. Both were widely explored, and the only pathology present was the enormous intestinal distension caused by adhesions of coils of terminal ileum to pelvic structures. A very small amount of peritonitis was present. Both patients died.

## SUTURE

In our earlier cases pus cases were sutured. In later years after MacLaren's<sup>5</sup> publication advocating strapping, we have followed his method and believe that the patient gets out of bed quicker and the wounds heal with less tendency to postoperative hernia because there is no sloughing of the fascia. The peritoneum is sutured up to the drains so that the coils of intestines cannot protrude, and the rest of the wound is strapped with adhesive strips, which are thoroughly flamed before being applied. It is remarkable how nicely and rapidly these wounds have healed in comparison with the sutured cases where much of the fascia sloughs away. Where we use the packed rubber glove, the packing is gradually removed after the first 48 hours and as soon as all the packing is removed, the rubber glove can easily be removed by twisting.

## POSTOPERATIVE POSTURE

All cases where pus is present are turned on the right side with knees flexed. In cases where we fear necrosis of the walls of the cecum, we do not use the Murphy drip, but prefer subcutaneous administration of tap water. In children it is often advisable to give a pint of water intravenously while on the table.

## ENTEROSTOMY

I shall refer again to the subject of enterostomy. In all cases where distension persists in

spite of treatment we do not hesitate to perform enterostomy. Dr. Cooney,<sup>6</sup> of Princeton, has performed enterostomy oftentimes at the time of the removal of the appendix and with gratifying results. Dr. A. N. Collins<sup>7</sup> has also used enterostomy at the time of the primal operation. If enterostomy is performed early it will prevent the excessive distension of the intestine. The enterostomy tube always comes away without any complications needing subsequent surgery.

## SUMMARY

1. There are too many cases coming to the surgeon after the favorable time for operation has passed.
2. Giving cathartics and narcotics before diagnosis is made in any case of acute abdominal pain is contra-indicated.
3. A campaign of education with our patients and some of the profession is needed on points 1 and 2.
4. Early operation is practically without mortality.
5. The Ochsner treatment after the first 48 hours have passed will, with few exceptions, save more lives than operation at any stage.

## BIBLIOGRAPHY

1. Haggard: Southern Medical Journal, No. 11, vol. viii, page 957.
2. Ochsner: Personal Communication in June, 1924.
3. MacLaren: Journal of the American Medical Association, June 25, 1910, vol. liv, pp. 2105-2107.
4. Sampson Handley: British Surgical Journal, 1915.
5. MacLaren: Annals of Surgery, 1919.
6. Cooney: Minnesota Medicine, 1919.
7. Collins: Minnesota Medicine, 1921.

## DISCUSSION OF THE TWO PRECEDING PAPERS

DR. HERBERT E. LANDES (Kenmare): I agree fully with what Dr. Mulligan has said in regard to the part of tenderness and pain in the diagnosis of acute appendicitis; and I believe that he has rightly laid especial emphasis on the location of the tenderness rather than the pain. In general, however, pain with its characteristic location and radiation is of the greatest importance in diagnosing abdominal conditions. We must bear in mind, however, that accurate localization of pain within the abdominal cavity is not possible until the inflammation has spread to the parietal peritoneum.

Dr. Capps has shown that localization of points of pneumonia as contrasted with the tenderness accurately accomplished, and this we know to be true also from abdominal operations done under local anesthesia. Also, Ross has shown that distension of the hollow viscera produces a painful sensation and that the pain is likely to be diffuse rather than well localized,—a characteristic of visceral pains in general. That is probably the explanation for the often noted diffuse or epigastric pain with which acute appendicitis begins, later localizing in the right lower quadrant when the regional parietal peritoneum has become involved.

The hyperesthesia of the skin in the early stages

of pneumonia as contrasted with the tenderness elicited by deep pressure in acute appendicitis may help to differentiate these two conditions; also, in acute pyelitis we commonly find a laxity of the abdominal wall, not present in acute appendicitis.

DR. PAUL BURTON (Fargo): Dr. Mulligan has certainly covered the field very thoroughly. He has emphasized pain, tenderness, local rigidity, nausea, and vomiting. As a rule, the laity will make the diagnosis for you before you come to the house if they have those symptoms.

Dr. Bratrud brought out the point that our mortality is still very high in appendicitis. It is undoubtedly due to procrastination in diagnosis, waiting to make the diagnosis in the laboratory, instead of from the history, as Murphy and Ochsner have tried to pound into the medical and surgical world.

The only thing I want to add is that in my pus cases the thing that has reduced the mortality is the drain in the flank, especially in retrocecal rupture and abscess.

In chronic appendicitis, which we might dwell upon very much, we all have our own ideas, and, personally, I believe in chronic appendicitis. My friend, Dr. Quain, has some definite ideas and I hope he will discuss this paper.

DR. H. E. FRENCH (University): It may be worth while to consider for just a moment why pain is experienced in other parts of the abdomen. The chief factor is what we call referred pain. This is not a true reflex, nor have I time to discuss the physical basis of a true reflex, though it would be well to begin any discussion of this subject with such a consideration.

Passing by this idea the first point to bear in mind is that the innervation of the body is segmental; that is, every part of the body is always related to its segment of the central nervous system. The segment or segments supplying any given area of the skin, however, do not necessarily supply the muscles immediately under that skin area, and much less do they necessarily supply the viscera under that area. This accounts in part, for what we find in appendicitis, and is even more strikingly illustrated by sensations or pain in the arms and finger tips in pulmonary inflammation and on the inner side of the arm in angina pectoris and pleurisy.

The next point is the difference between the sensory or afferent nerve supply of the viscera as compared with that of the somatic parts of the body. Touch, temperature, and even pain are absent or at least very different from the corresponding sensations arising in the skin. A viscus, however, is susceptible to pain upon distention, and probably inflammation or injury increases its susceptibility or at least the afferent impulses from it. The afferent neurones from the viscera, by means of their collaterals and by means of association and commissural neurones in the cord, discharge their impulses to other neurones which carry the impulses toward the brain and toward consciousness. These latter neurones, however, are in the habit of receiving far more impulses from the somatic part of the body, the skin, etc., and we simply interpret pain impulses originating in the viscera as coming from the corresponding segmental somatic areas. The appendix and cecum probably send their afferent impulses to the eleventh thoracic segment; referred



pain from the appendix is therefore, commonly felt over the lower right hand part of the abdomen. This is also true for the motor reflex giving rigidity (a true reflex). Afferent impulses are delivered, however, not only to the corresponding segment but by means of collaterals to neighboring segments. Hence, the wider distribution of pain that is sometimes found, and hence, too, in part, the explanation for pain in the epigastrium. When the appendix lies back of the ascending colon or extends upward, while its own afferent nerves should be the same as in any case it does come to lie in regions supplied by nerves of higher segments. It is because of the sensitiveness of the peritoneum and the extraperitoneal tissue now involved whose afferent fibers go to higher segments that we have pain in these cases particularly referred to the epigastrium, the subcostal region on the right and even the subscapular region. In the same way, when the appendix extends mesially and down into the pelvis it is because we have peritoneum and extraperitoneal tissue of this region involved even on the left side, perhaps, that we have pain referred to the lower abdomen, the anterior part of the thigh or the left side.

In closing, I would simply suggest the question whether at times we might not also have reflex colic involving other parts of the gastro-intestinal tract; also whether at times the appendicitis may not be simply a part of a more extensive involvement, the appendix involved truly enough, but other parts of the gastro-intestinal tract also involved, possibly primarily, and that the location of the pain may be accounted for upon this basis.

DR. MULLIGAN (closing his part of the discussion): I have really nothing to add. I was interested in the discussion of Dr. Landes and the point he brought out that there was not much localized pain except where the peritoneum was involved. I think that is a point well taken.

I was interested in Dr. French's discussion. He brought out some points that I did not know of before. Perhaps Dr. Jones would say something on the other cases, particularly those with some neurological findings.

DR. E. P. QUAIN, (Bismarck): In spite of your statement, Mr. President, that appendicitis is a hackneyed and threadworn subject, I still believe that it is one of the most timely and important subjects that could be discussed before this meeting.

Appendicitis is exceedingly prevalent in this section of the country, and it is the most deadly of the abdominal diseases with which we have anything to do. For a long time it has seemed to me that this western section of the country, especially the basin of the Missouri River, has a higher incidence of appendicitis than any other section of our country. Often when we meet eastern surgeons and speak of the number of cases we treat out here, they think we are lying, so we have learned not to talk about it.

We have a very high incidence of acute appendicitis. We used to have a very high incidence of chronic appendicitis, also, but for some reason the chronic cases have dropped off and are now rather rare. However, I shall not fall for the temptation to discuss chronic appendicitis, enticing as the subject is to me always. The pathologist at Bismarck

Hospital will have something to say of the relation between acute and chronic appendicitis.

Dr. Bratrud's paper is really a discussion of the result of the Ochsner treatment of acute appendicitis. Some years ago we tried to put into practice the Ochsner treatment as we understood it. We tried our best to master it and to get the results promised from it. But the results were not satisfactory. I have learned, too, that comparatively few have been able to get the results obtained by the master surgeon who originated the method. I must admit, therefore, that by his results Dr. Bratrud has proved to me that he has a surgical judgment superior to any found in Bismarck. This is no surprise to me, for I have met him on many occasions, and we have discussed many surgical and other problems, and, usually, he has occupied the position of the teacher, and I that of the pupil.

We have again in late years followed the teaching of Dr. Wheaton, of St. Paul, now of sacred memory. His dictum to us internes was, "The time for treatment of appendicitis is 30 minutes after diagnosis has been made, or, if the weather is cold, make it 60 minutes, in order to get the operating room sufficiently heated." This implies, also, the removal of the appendix in the first operation. It is required that the operation be done quickly, so as to minimize anesthesia, shock, and trauma. For best results it is necessary that considerable experience should control the palpating finger, for it must have the ability to quickly diagnose the intra-abdominal conditions and to locate the appendix.

The principles of drainage brought out by Dr. Bratrud are very much in accordance with our practice. These principles, first taught me by Prof. Lennander, we are still trying to follow. His practice was to make wide incision and "lay the infected peritoneum extraperitoneal," as he put it, by using large gauze packing after removing the infectious focus. We have modified both incision and technic of drainage, but we retain the principle and try to remove the focus, the appendix, in every case. The harder it is to find the appendix, the more important it is that it shall come out at the first operation. A gangrenous appendix so located that its entire surface presents freely in an abscess cavity, and is, therefore, easily found and removed, will not cause much trouble if not removed at primary operation. It drains freely to the outside and will perhaps slough out; but an appendix buried behind intestinal loops and draining into a main abscess cavity through a small concealed sinus, deep in the abdomen, will cause serious trouble until it is removed, or until the patient dies.

Regarding the incision: We have practiced the muscle-splitting or the transverse incisions exclusively for a long time. However, I will admit that in acute infections, in tumors, cancer, tuberculosis, and other abdominal emergencies, a right rectus incision is justified, at times.

As to sutures; I am in full agreement with the doctor that any suturing of infected tissues in the abdominal wall is likely to be an invitation for necrosis and additional postoperative trouble.

We have long ago discontinued the so-called Fowler's position. By that method we are trying to drain uphill over the brim of the pelvis. The best way to drain is to follow natural law and let fluids drain downward. Therefore, the patient should

be so placed in bed that the draining wound is at the lowest part of the abdomen.

I approve very much of Dr. Bratrud's conclusions and regard his statement about cathartics as specially important. Some time ago we had this question looked up in our records, and we found that every patient who had come to us with acute apoplexy, had been given a cathartic at the onset of the disease. I believe this condition, in our experience, is still true. We have had a lot of educational movements. We have had a "Cancer Sunday" every year for the dissemination of cancer knowledge. We have a "Tuberculosis Sunday,"—it is about time to have a "Castor oil Sunday."

The records covering our treatment of acute appendicitis for some years past have been summarized by Dr. Waldschmidt, who is here to read his report.

DR. R. H. WALDSCHMIDT (Bismarck): This is a statistical report of 513 cases of acute appendicitis, with and without peritoneal infection, operated on by members of the Quain and Ramsted Clinic during the four years, from July 1, 1920, to July 1, 1924.

Of this number there were 260 cases of acute appendicitis without peritonitis. Appendectomy was made in all cases. In 18 of these it was deemed advisable to leave a small drain in the abdominal wound for a few days. The average length of illness before operation was 41 hours, ranging from 12 hours to 8 days. The average age was 21 years, the youngest patient was 4 years, and the oldest 53 years old. There was no mortality and no post-operative hernia among the 260 cases.

Of this series 155 had local peritonitis and abscess. The appendix was removed in 137 cases, or 89 per cent. It was not removed in 18 cases on account of the poor condition of patient or the inadvisability of breaking down adhesions. There were post-operative complications in 8 of the 18 from whom the appendix was not removed. This is an incidence of complications twice as high as in the 137 where appendectomy was performed at the primary operation. The average length of illness before operation was 4 days, ranging from 1 to 35 days. The average time drains were left in wounds was 15 days. Enterostomies were made on 14 patients. The average age of the 155 cases was 22 years, the youngest 2 and the oldest 69 years old. Four patients died, or 2.5 per cent; 9 patients, or 5.8 per cent, were re-operated on for hernia. The only patient in whom a right rectus incision was made returned with a hernia.

There were 98 cases with acute progressive peritonitis at the time of operation. Appendectomy was made and drainage established in all cases. The average length of illness before operation was 5 days, average length of leaving drains 19 days. The average age of patients was 15 years, the youngest 3 years and the oldest 65 years old. Enterostomies were made on 11 patients; 9 patients, or 9.1 per cent, died. One patient has been re-operated on for hernia.

The total mortality rate for the 513 cases was 2.5 per cent. The total number of postoperative hernias which have come to our attention was 1.9 per cent. All patients who had drainage had been given a special instruction to report at the first sign of bulging at the place of incision.

No patient who applied for treatment was refused operation because of a precarious physical condition.

DR. W. A. JONES (Minneapolis, Minn.): I am afraid my experience with appendicitis and other ills of the abdomen would not be very illuminating, if I should frankly speak my mind. It has been my misfortune to have seen a good many people who have been through the hands of the surgeon, and I sometimes think that too many nervous people have been operated on for other than the true causes of their trouble. As an extreme case I recall a woman who had been operated on eight times. Two operations were performed in her upper abdomen, followed by two operations for the removal of adhesions; and after each operation she complained of the same pain she had before. Following her fourth operation the pain returned, and the surgeon sought for new operative fields and decided to invade the pelvis; but again, the pain returned following each operation. After the seventh operation she became a morphinist, but proper care and hospitalization cured her. And then I met her one day coming out of a medical building, she told me she was going to have her uterus removed. This was her last operation, and she afterwards suffered no pain for she died very soon afterwards.

I think a large majority of the people who submit to operations of this kind should be very carefully examined and analyzed to determine whether they are really neuropsychiatric patients or whether they need an operation for an actual disease. If we give time enough to our investigation of patients we often find conditions as described by Dr. French in the course of the nerve trunks and the seat of pain which can be traced to a nervous disorder; and the more these people are operated on, the more intense becomes the nervous disturbance. It is quite probable, as Dr. Mulligan found, that some of these nervous people should be treated from a nervous standpoint and not be subjected to surgical interference. These nervous patients are increasing rapidly, and are more or less wanderers in the field of medicine. They go from doctor to doctor and cult to cult until they are lost in the maze of medicine, surgery, and vain, hopeless expectation. They should be taught how to think and how to act, and their disorder explained to them in a sensible manner. Someone facetiously remarked that the only remedy for many of these neurotics that fell into the hands of the surgeon was to have them trephined on both sides of the skull and blow through one of the openings a stream of thought or a bit of laughing-gas that would take away from their consciousness many of their alleged abdominal symptoms.

DR. J. E. ENGSTAD (Grand Forks): It is my firm conviction that my dear friend, Dr. Jones, made a wrong diagnosis when referring to trephining the skull of hysterical patients. It is my opinion that any physician or surgeon who persists in operating and re-operating on neurasthenic patients ought to have his skull trephined. I now recall that a young lady called on me about ten years ago for some minor ailment brought on by being at the head of her class in the local high school. No operation was advised. She has subsequently undergone seven operations, the larger number being performed for the correction of the first two or three. Mental suggestions finally ameliorated all her distressing nervous symptoms, and now she is enjoying fairly good health.

The authors laid special stress on drainage follow-



ing any suppurative appendicitis operation, which is a very important part of the technic. It is my custom to put my patient in an inverted Fowler's position or prone on the face in bed, often supported by a pillow under the abdomen. Pus, like water, seeks its lowest level. In virulent cases the wound is left wide open, the bowels being walled off with gauze. Hard-rubber tubing is the only rational material. I occasionally put in a few silkworm sutures which are tied after the acute symptoms have subsided.

Dr Quain mentioned castor oil week or castor oil Sunday, which was to the point. I would suggest that we set aside a part of the year for a thermometer Sunday or thermometer week. My reasons for this is that I have come to the firm conviction that the benefits accruing from the use of a thermometer in the hands of a large number of physicians have been more than overbalanced by the damage done by making a diagnosis based entirely on the patient's temperature. I earnestly urge that the patient's temperature in appendicitis or suspected appendicitis should not be the guiding medium in forming a diagnosis. I have known of a number of deaths due to the local physician's dependence on the thermometer and its readings.

In my first thousand cases, most of which were pus cases, the appendix was generally left in situ except where the organ was the primary seat of tuberculosis. In the subsequent cases I have almost invariably removed the appendix. As a rule, it is very easy to find it for all that the operator has to do is to put his finger in the abdomen and the appendix apparently sticks to the finger as if it was hooked. Extended search for it is unwarranted.

DR. G. M. WILLIAMSON (Grand Forks): Dr. Quain has covered the points presented in these papers so thoroughly in his discussion that there seems nothing further to add. However, he made the statement that appendicitis was more prevalent in this western country than farther east. I want to ask him if he has any reason to offer or explanation to make regarding this statement. At this time it is not clear to my mind how this can be. It may be possible that eastern men are more conservative regarding treatment and more cases are treated medically, and that the practice here is to operate as soon as a diagnosis is made, which would give the impression that the disease is more prevalent here.

DR. QUAIN: I do not know why it is more prevalent here.

DR. L. W. LARSON (Bismarck): In the six months I have been in Bismarck I have had an opportunity of studying a number of atypical cases of acute appendicitis. The following report is made in the hope that other medical men may become interested in the subject, which is a rather new one and deserving of further investigation.

We had a series of 12 cases, 1 male and 11 females, who came to the office complaining of pain in the right lower quadrant. All of them had had previous attacks. Nausea was quite common but emesis rare. Some of them complained of a dragging sensation in the right side. Upon examination it was found in every instance that there was a slight elevation of temperature up to about 100° and a leucocytosis, never over 10,000, with tenderness over the right

lower abdomen. In some of the cases a slight muscle spasm was present, but in none of them was there the hard board-like muscular rigidity of severe local or general peritonitis. The diagnosis in more than 60 per cent of the cases was appendicitis. Some members of our staff, having seen cases of this type a number of times before, made a diagnosis in several of these 12 cases, of right coloptosis with pericolic membranes producing the pain.

Upon opening the abdomen, grossly the appendix was normal in each case. A band, or pericolic membrane, was found covering the cecum or ascending colon in every case. This pericolic membrane was attached in various places on the peritoneum of the lateral abdominal wall, some anteriorly and some posteriorly. In every case the report of the surgeon operating was coloptosis of varying degree.

From my standpoint the most interesting feature was the microscopic examination of these appendices and the pieces of pericolic membranes removed at operation. In the first place the pericolic membranes varied in their gross appearance. Some were comparatively thick and very much injected and others were fine, filamentous bands. In none of them was there evidence of round cell infiltration. They were made up of connective tissue of varying density. In each case the appendix was normal. Here we have 12 cases, 11 females and 1 male, with symptoms simulating acute appendicitis, but with the appendix normal and with acutely injected pericolic membranes as the only evidence indicating the cause of the symptoms.

DR. BRATRUD (closing the discussion): Regarding the Rovsing syndrome; it does not seem to have gained the position in American literature that it deserves. About twenty years ago Dr. Rovsing called attention to the fact that by pressing with the flat hand over the left lower abdomen and suddenly releasing the pressure a patient with an intraperitoneal lesion will complain of pain in the vicinity of the right lower quadrant if the lesion is there. We have found this of distinct value in differentiating between renal colic and appendicitis. There is another writer who has introduced a modification of the Rovsing syndrome. The patient feels pain referred to the right iliac fossa when pressure is made over the left iliac fossa.

I do not want to be understood as saying that no case should be operated on after forty-eight hours. As I said in my paper, after forty-eight hours the acute cases are too late for early operation and too early for late operation. The question of when to operate on these cases will depend on the skill and judgment of the individual surgeon. After forty-eight hours a great deal of damage has occurred, and nature is attempting to build up an immunity, and, if we interfere, we are going to break it down before it has well started. That is the reason I believe why so many of these cases going over forty-eight hours die. Another reason is that they still have a good deal of abdominal distention, and, if you make only a small incision into the abdomen, you have a reflex paresis of the abdominal organs that persists sometimes for twenty-four or forty-eight hours, and, if we do operate on some of these cases, we increase temporarily this reflex paresis. It is a question that has to be solved by the skill and judgment of the individual operator.

# CONTAGIOUS DISEASE PREVENTION: A REVIEW OF THE PRESENT-DAY POSSIBILITIES IN PROPHYLAXIS

BY E. S. PLATOU, M.D., AND  
C. A. STEWART, M.D.

MINNEAPOLIS

The recently reported investigations of Dick, Zingher, Dochez, and others, which offer to us an apparently successful means of preventing scarlet fever, should serve to stimulate a renewed interest in practical immunity throughout the country.

Unfortunately, in this age of cults and fancies, it is more difficult than ever to impress a large proportion of our population with the value and importance of immunization. Were it not for the constant vigilance of health officers our mortality rates, no doubt, would be much higher than they now are.

The following table, taken from the records of the Minnesota State Board of Health, shows very definitely the value of recent vaccination in Minnesota during 10 years:

of the one-hundredth anniversary of Jenner's discovery, a severe epidemic occurred.

During the past two months we have had occasion to examine approximately 2,500 well children of pre-school age in the northwest. Of this number, only 25 (or 1 per cent) had been protected against smallpox, and 12 (or 0.5 per cent) against diphtheria.

In the light of our experiences we feel that the value of immunization to the specific infectious diseases has not impressed itself sufficiently even in our own ranks. To this end the present status of immunization as it applies to each of the more prevalent communicable diseases is briefly reviewed:

**SMALLPOX.**—It is sufficient to say that vaccination and re-vaccination are absolute safe-

Class "A" Successfully vaccinated within 7 yrs. before attack			Class "B" Successfully vaccinated over 7 yrs. before attack		Class "C" Never successfully vaccinated & Class "D" No history, no scar		Total	
Year	Cases	Died	Cases	Died	Cases	Died	Cases	Died
1913	47	0	191	0	2,615	7	2,853	7
1914	18	0	99	0	1,730	7	1,847	7
1915	28	0	90	0	1,590	6	1,708	6
1916	23	0	36	0	1,197	1	1,256	1
1917	33	0	64	0	2,730	20	2,827	20
1918	15	0	73	0	2,197	7	2,285	7
1919	28	0	48	0	2,372	9	2,448	9
1920	108	0	195	0	6,030	15	6,333	15
1921	223	0	476	0	2,676	25	9,375	25
1922	27	0	101	0	2,142	9	2,270	9
1923	36	0	85	1	1,829	1	1,950	2
	586	0	1,458	1	33,108	107	35,152	108

1.7% Class A, none died÷4.2% Class B, 1 died÷94.1% Class C and D, 107 died.

So far in 1924 (to October 8) there have been 1,635 cases of smallpox in Minnesota with 24 deaths reported. There is obviously but one reason for this increase, namely, a laxity in vaccination enforcement.

Epidemiology relates innumerable similar increases in the past, checked by vaccination only after smallpox became alarmingly prevalent. Even in Gloucestershire, in 1896, on the occasion

guards, and here it is merely a-matter of propaganda. Vaccination should be done at an early age, preferably in late infancy, and repeated every five or six yers. Physicians should discourage any false feeling of security due to failure of vaccination to take, for it is well known that the smallpox virus loses its potency easily.

(It should be kept at a temp. below 41° F.)

**DIPHTHERIA.**—Toxin-antitoxin, first used successfully in humans by von Behring in 1913, is now recognized as a practical means of producing



permanent immunity to this disease.

With the preparations standardized as they now are, the inoculation can be given with perfect safety. During the past year we have inoculated, or seen the results of inoculations on 350 children without a single untoward symptom.

The following points concerning the procedure are important:

1. The preparation should be not older than three months, and should be kept cool.

2. The three injections (1 c.c. each) should be given at not a greater interval than seven days.

3. The first injection should not be given sooner than two weeks after the administration of antitoxin. (To avoid over-neutralization of the toxin.)

4. The development of immunity takes from one to six months.

5. It lasts at least for six years, and probably for life.

6. A Schick test should be applied six months after the injection to be sure that the individual is immune.

7. The immunization should be given early in life, preferably at the age of one year, (1) because at this time the antitoxin conferred by the mother has disappeared, (2) because experience shows that at this time reactions are minimal, and (3) because the majority of endemic diphtheria occurs between the ages of two and five years.

**SCARLET FEVER.**—The toxic filtrate obtained by the Dicks from a growth of scarlatinal streptococcus, when injected intradermally, gives a positive reaction in persons who have not had scarlet fever, and a negative one in those who have had the disease. We have, therefore, an accurate means of determining susceptibility or immunity to scarlet fever.

Active immunization with this toxin (using first 100, then 250, and again 250 "skin test" doses at intervals of one week) has been successful, as indicated by a re-test as early as two months in approximately 61 per cent of cases in Zingher's series in children. At the present time one of us is using the toxin as a routine procedure among the patients and attendants in the Contagious Department of the Minneapolis General Hospital. It is hoped that by this means scarlet fever cross infection may be eliminated entirely.

**MEASLES.**—By injecting blood (or serum) from a convalescent measles case into children who have been exposed to the disease we can produce a temporary immunity in them, which will, for

the time being, give protection. This has its greatest value, of course, in institutional practice, although there is no reason why most cities cannot conduct a station as has already been instituted in Paris for the collection and distribution of serum, particularly in time of epidemic.

**PERTUSSIS.**—The efficiency of pertussis vaccine depends wholly upon the preparation. The vaccine must come from a reliable source, and be absolutely fresh to have any value whatever. With these requisites fulfilled, it is believed to be effective prophylactically, whereas in the course of disease, even when given early, it probably has little value even as a palliative measure.

This brief review of known facts concerning the value of active immunization against smallpox, diphtheria, measles, scarlet fever, and pertussis is presented with the hope that it may stimulate physicians to recommend these valuable protective measures to their patients. If physicians conscientiously discharge their duties in this respect, statistics of the next few years undoubtedly will show a decline in the incidence and death rate resulting from preventable contagious diseases.

## BOOK NOTICES

**OPERATIVE SURGERY.** Covering the operative technic involved in the operations of general and special surgery. By Warren Stone Bickham, M.D., F.A.C.S. Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York, Former Visiting Surgeon to Charity and to Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original and separate Desk Index Volume. Volume 4 containing 842 pages with 772 illustrations. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$10.00 per volume. Sold by subscription only. Index Volume, free.

In this volume there is taken up a discussion of the pericardium, heart, some endothoracic operations, and operations on the abdominal wall and certain abdominal organs. The abdominal organs considered are the peritoneum, omentum, mesentery, stomach, pancreas, spleen, liver, biliary tracts, intestines, and appendix. Of special interest is the description of the Reverdin needle and its use. The discussion of the counterpressure used in thoracic surgery is contained in the third volume.

There are fewer typographical errors in this volume, and the plates are very thorough in their exposition.

This surgery is without doubt the most thorough text on operative technic yet written and it is very clearly recorded. The comments and numerous plates make its meaning unmistakable.

—DANIEL H. BESSESEN, M.D.

# THE JOURNAL-LANCET

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota and Montana**

The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

A. J. McCANNEL, M.D. - - - Minot, N. D.

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

839-840 Lumber Exchange - - - Minneapolis, Minn.

DECEMBER 1, 1924

## BONE TUBERCULOSIS

Reference was made in the last issue of THE JOURNAL-LANCET, in connection with the Tri-State medical meeting, to Dr. Russell A. Hibbs, Professor of Orthopedic Surgery, Columbia University, New York, and as his subject is of vital importance to the general practitioner perhaps the editor will be pardoned for attempting to bring out a part of his suggestions to the audience.

Dr. Hibbs had a line of statistics showing how cases of tuberculosis in children develop, or at least how joint disease in children develops, in about the fourth year or about the fourth to the sixth year and up, and that as time goes on there are many recurrences, even after children have been benefited by a long period of rest. In summing up 77 cases taken to illustrate his point, 7 of these died in early life; 16 of the cases relapsed; and out of the whole number 34 were said to be cured. In another series of clinical cures there were 74 cases. Out of this number 32 relapsed. And Dr. Hibbs said, very frankly, that this was not a record to be proud of, because it left the patients disabled, usually.

He brought before the Society for discussion and for consideration the fact that a great change had taken place in the method of treating diseases of the bones, for the reason that these children were gathered in at an early age because they had their disease early in life, and that, according to the old-time method, they were put in bed, their joints immobilized, and they were left there for indefinite periods,—sometimes for

as much as ten or even fourteen years. Dr. Hibbs' argument was that these children went through a period of life when they should be in entirely different surroundings; that from six to fourteen or from six to eighteen these children ought to be associated with other children. They ought to grow up in surroundings that would develop them into men and should learn, if possible, an occupation. But in most of the cases this training had been denied them, and he considered that so many years wasted when the supposed case of joint disease, which was thought to be tuberculous, was confined to a hospital for this length of time. He spoke particularly of hip-joint cases as well as knee-joint cases, and declared that hip-joint cases were worse than those of the knee; and that when children developed Pott's disease and tuberculous hip-joint disease the outlook was bad for cure or even regained efficiency.

He believes that many of the cases of diseased joints are unfortunately treated; he so admitted without any qualification, for he had discovered in his years of experience that sometimes the diseased joints that have been immobilized for long periods of time were not tuberculous joints, and after this had become an established fact the method of treatment was entirely changed. He thought that these children should be subjected to an early diagnosis, and the better method of diagnosis is to study the patient, the family, and the history of the individual very carefully, and particularly to demonstrate the presence or absence of other forms of infection; that there were doubtless numerous cases of joint involvement which were due to infection elsewhere in the body of a non-tuberculous type. The result was that these children were brought in for investigation, they were x-rayed, and when there was any question of diagnosis the joints were opened and they injected whatever was possible from these joints into guinea-pigs to demonstrate whether they were tuberculous or not. Much to their surprise they found a number of cases that they suspected as being tuberculosis were not, and this resulted in a change in treatment. These patients were not immobilized. They were operated on early, and any disease which was presented was removed as promptly as possible. Even though the joint surfaces were involved by some disease, whether tuberculosis or not, the diseased tissue was removed, and the normal and solid bony surface of the femur and tibia were fused, brought together, and the fusion encouraged as it would be in any other operation on a bony joint. He thought there was no danger of



attacking and opening the synovial membrane around the knee-joint or the hip-joint, that it could be done very skillfully and without fear of producing any further disastrous results; and he argued, too, that the joint was bound to become immobilized itself, and it might as well be done early as late, particularly in tuberculosis. Then the patient will be treated as an ordinary bone case; and he will be in bed for a reasonable length of time and then gotten up and out-of-doors and encouraged to walk and exercise and do what is advisable. Dr. Hibbs' experience showed that many of these children were returned to health and happiness and were permitted to grow and develop as children do, or should do ordinarily. He emphasized especially the necessity of early investigation, early operation, and early attempt at fusion in all cases of tuberculosis of the knee or hip. Doubtless this view was startling to some of the surgeons who are not quite ready to accept such radical measures, but Dr. Hibbs has a way of explaining his point of view, illustrating his arguments by cases and reports of cases showing speedy return to a reasonably normal condition when early operation is done.

### OLD SYPHILIS

We are prompted to write something on this subject after reading an article by Dr. B. A. Thomas, Professor of Urology, University of Pennsylvania. He starts out with this sentence, "The old dictum that the most successful practitioner of medicine is he who most successfully treats syphilis was never truer than to-day." This should apply, first, to the necessity of early diagnosis of syphilis and its intensive treatment, as well as to the absurdity of relying upon a single or a small dose of whatever is used. This applies very naturally to early syphilis and equally well to the urgency of regular doses of salvarsan or neosalvarsan, or their substitutes, and this is urged as a necessity and the only anchorage that can be depended upon in the majority of cases. On the other hand there are a certain definite number ofluetics who can take neither salvarsan nor its derivatives, and the old method of treatment must be relied upon. The question of reactions of these arsenical products is one of continued interest. In some people they are inevitable, in others nothing seems to follow that is deleterious. This would suggest, then, that it shows the man, the individual, who reacted to his drug, whatever it was, and that brings us back to the point where it is the individual who is to become the candidate for syphilis. For, if

every man or woman who had syphilis, developed syphilis in some other part of the body, and we looked upon syphilis as a cause of an illness which inevitably led to the death of the individual, the world would soon be depopulated. Fortunately, there are thousands who do not have more than a passing syphilis or at least a syphilis which is quiescent for an indeterminate period. These people go on, as do others who suffer from other forms of infection. They get clinically well and stay so. Sometimes both of these types of individuals react suddenly to some excessive strain or other type of infection and develop either a syphilis or a chronic disease.

There has been a good deal of dispute about the Wassermann test, but this we cannot go into because we are not sufficiently familiar with the facts to make any definite statements except to say that in many instances the Wassermann test is a very necessary adjunct in ordinary diagnosis. But how the "Wassermann-fast" will last is something no one knows very accurately. A Wassermann can be determined in patients that are unsuspected, and a lack of Wassermann reaction may be found in any number of people who have a definite history of syphilis. Dr. Thomas thinks it is very unfortunate that the term "Wassermann" should be used in the presence of patients. He thinks it is a deplorable mistake in modern medical practice. We cannot entirely subscribe to this view, because most of the people nowadays who are seeking medical advice go to the best men they know, and they want to know all about themselves. They want to know all about their blood count, and their biochemical tests, and urinalyses, as well as the Wassermann reaction. The objection Dr. Thomas has to it is that many of these people become mental, physical, and moral wrecks, and that the knowledge that they have a persistent positive Wassermann may lead them to commit suicide. Well, what of it? They are in bad, they are likely to go bad, and nothing even in the shape of an arsenical preparation can prevent it. So it seems hardly necessary to worry over this proposition too much.

The question really before us is, what are we going to do with our old cases of syphilis? The popular idea is to treat them and treat them intensively and vigorously over a long period of time, in the face of the probability that most of these old cases have destructive lesions, particularly of the nervous system. Where the destruction is evident there are patches of sclerosis, new tissue and artefacts or diseased blood vessels that have ceased to function; and yet many prac-

tioners go on treating these people with anti-specific treatment and particularly the arsenical preparations. Why? Does it really do any good? Can we restore a lost tissue by filling a patient full of drugs? Not in the old cases. Most of our cases of syphilis, either new or secondary, or old, need mercury as a supplemental treatment to other drugs, and it is probable that for one to depend upon the arsenical preparations alone without interspersing mercury does not accomplish as much as if he gave mercury and gave it by definite standard.

Again the question comes up as to the old-time doctor and his old-time patients who have a lot of the old-time symptoms that get better or are cured by mercury or iodine in some sort of menstrum. This may not be the popular treatment of the day, but it was in older days, and the results were quite as satisfactory as they are at the present time, particularly in the old types, in the old patients,—patients who had had syphilis anywhere from fifteen to forty years. It hardly seems quite the thing to fill a man or woman up with arsenical preparations, or much else in the way of treatment except that which is supportive, and delude yourself with the idea that new tissue can be restored where old tissue has disappeared. These people get better, really, with proper medical care. They are rested and fed up and given something that keeps them in good condition, and they can be given other things intravenously than the arsenical preparations although it will be impossible, at the present time, to exclude the newer remedies for syphilis because they have fastened themselves in the practitioner's mind to such a degree that he will be loath to give them up. In spite of all this they are constantly introducing new substitutes.

#### THE CASS COUNTY (N. D.) MEDICAL SOCIETY MEETING AT FARGO

Fargo, a city of 25,000 people, presents a very attractive appearance to the visitor, with its new buildings and its active streets, wide thoroughfares, and paved roads, its beautiful park, which was given the city some years ago, and at either end of the city their well-constructed and well-ordered hospitals, St. John's beyond the park and St. Luke's on the north side, both of which are modern hospitals, and apparently both are busily engaged in caring for a large number of sick people who are attracted to Fargo from the seven points of the compass. Quite naturally, Fargo has become a medical center for a large surrounding territory, and the medical organization there

known as the Cass County Medical Society is a very flourishing body of men, who are active students of medicine and surgery, and who present a very definite picture of men well groomed and well built, active, keen, and alert.

The writer is saying this as a sort of introduction to the invitation which he accepted to read a paper before the Society, the subject of which was "Borderline Cases, Nervous and Mental." It is very gratifying to find a county medical society that can turn out forty men at an evening meeting, and this happened to be the second meeting in November. The October meeting was necessarily upset by the Tri-State District Medical Society meeting; and these men, in order to keep up the stated work of their meetings had two meetings in one month. That shows their intensity of spirit. One striking feature about the Fargo medical profession seemed to be its continuity. The men seem to like one another, and they are working with one purpose in mind, to do the best they can for their patients. They spoke well of one another, too, and at the meeting it seemed to be a friendly family gathered together in conference.

There are Clinics, of course, in Fargo, as elsewhere, and they seem to be a part of the general activity in medicine. The Clinics are more or less interested in their separate hospitals, one in connection with St. Luke's and one or many factions, speaking from the friendly viewpoint, connected with St. John's Hospital. St. John's Hospital, by the way, furnished a Mother Superior who has been at the head of St. Mary's Hospital in Minneapolis for some years. She was in Fargo for nearly twenty years at the head of St. John's Hospital, and this accounts for the high excellence of its management and for its marked activity.

---

#### DR. JOHN WILLIAMS

The death of Dr. John Williams occurred in Mankato, Friday November 21, 1924, from heart trouble. He was stricken while taking his evening walk.

Dr. Williams was one of the best known men in Southern Minnesota. He was born in Wales in 1856. He graduated from Rush Medical College in 1883, and has been practising medicine in Southern Minnesota most of the time since that date. He was one of the rare men, good, kind, faithful, and with the real spirit of the physician in him. He was always jovial and cheerful, met his friends in the same spirit that he would meet a relative. He was a member of



many medical societies, the Southern Minnesota, the State Association, etc., and was frequently an active man on the programs of such bodies.

Dr. Williams will be missed in medical circles, and his departure will cause great sorrow to all his friends.

## NEWS ITEMS

Dr. M. J. Fiksdal has moved from Appleton to Willmar.

Dr. Hugo Rostel has moved from Arthur, N. D., to Fargo, N. D.

Dr. Lottie G. Bigler has moved from Armour, S. D., to Yankton, S. D.

Dr. E. H. Ruederger, of Bismarck, N. D., has gone to Los Angeles, Calif.

Dr. L. Boutelle has moved from Bismarck, N. D., to Watertown, S. D.

Dr. W. S. Raiter, of Cloquet, was married last month to Miss Thelma Larson, of Superior, Wis.

Dr. Richard Plackett, who practiced medicine at Redfield, S. D., in pioneer days, died last month at the age of 81.

Dr. A. K. Stratte, a recent graduate of the Medical School of the University of Minnesota, has located in Pine City.

The meeting of the Cass County (N. D.) Medical Society held at Fargo last week is reviewed in our editorial columns.

Dr. O. S. Wyatt, of Minneapolis, read a paper before the Eau Claire (Wis.) County Medical Society at the October meeting on "Spina Bifida."

Drs. C. B. Lewis and W. L. Freeman, of St. Cloud, have formed a partnership under the name of Drs. Lewis and Freeman. Dr. Freeman is in the East doing postgraduate work.

The new Wesleyan Hospital building at Wadena was dedicated last week. The building is a handsome three-story brick structure and is thoroughly equipped for hospital work.

Dr. John Williams, who practiced in Lake Crystal for many years, died in Mankato last month at the age of 68. Further notice of Dr. Williams appears in our editorial columns.

Dr. R. D. Campbell, of Grand Forks, N. D., who was appointed last month, is the only member from North Dakota on the Board of Governors of the American College of Surgeons.

In a recent examination of 3,487 students in the University of Minnesota it was found that students from the larger cities were in a better health condition than students from villages and the country.

Dr. E. C. Kendall, in charge of the chemical division of the Mayo Foundation, has been awarded the Chandler medal, bestowed annually by Columbia University in recognition of contributions made to science.

Dr. Charles W. Riches, a pioneer physician of Minnesota, who formerly practiced at Waconia and then entered the ministry and later returned to the practice of medicine, died in Minneapolis last month at the age of 70.

Plans are under way to double the capacity of the Dakota Deaconess Hospital of Brookings, S. D. The hospital is a community affair, and the business men of the city will raise the necessary funds for the improvement.

In our issue of Sept. 15 it was stated that Dr. A. C. Dean had moved from Grand Forks to Hatton, N. D. Dr. Dean went up to Hatton simply to inspect his farm (ranch) and is still engaged in practice at Grand Forks.

At the annual meeting of the Ramsey County Medical Society last month the following officers were elected: President, Dr. E. M. Hammes; vice-president, Dr. C. C. Chatterton; secretary-treasurer, Dr. A. G. Schulze, all of St. Paul.

The alumni of the New York Skin and Cancer Hospital are requested to send their present professional office addresses to the secretary of the re-organized Alumni Association, Dr. Herman Goodman, 15 Central Park West, New York City.

The Southwestern Minnesota Medical Society held its annual meeting last month, and elected the following officers: President, Dr. J. M. Hilger, Iona; vice-president, Dr. H. C. Doms, Slayton; secretary-treasurer, Dr. E. G. McKeown, Pipestone.

A monthly meeting of the Huron (S. D.) Medical Society was held on November 6, when a paper was presented by Dr. J. F. Paddleford, of Miller; and case-reports were presented by Dr. R. A. Buchanan, of Wessington, and Dr. B. H. Sprague, of Huron.

Since the publication of the Transactions of the North Dakota State Medical Association, Dr. W. C. Fawcett, President of the Association, has appointed the following Committee on Necrology: Dr. F. R. Smyth, Bismarck; Chairman;

Dr. E. M. Ransom, Minot; and Dr. F. L. Wicks, Valley City.

Dr. Carlton Graves, of Aitkin, died last week at the age of 70. Dr. Graves was a graduate of the New York University Medical College, class of '78, and began practice in Minnesota in 1883, and had practiced over forty-one years in Aitkin. He was a public-spirited citizen and was well known in medical circles.

A committee of laymen and physicians have been appointed to make local arrangements for the meeting of the National Tuberculosis Association in Minneapolis in 1925. The medical men on this committee are Dr. E. S. Marriette, of Minneapolis, and Drs. E. A. Myerding and Robinson Bosworth, of St. Paul.

Marion County, Oregon, has been selected as the field of the Far Western Demonstration, the fourth in the Common Wealth Fund Child Health Demonstration program. Its population is said to be 90 per cent American born. Fargo, N. D., is one of the three formerly selected demonstration points, and work is still going on at this point.

Minneapolis had on a social science drive last week. The "Science of Life" film, furnished by the United States Public Health Service, was shown at various places. The work was done by the Hennepin County Public Health Association, and talks were given by Dr. H. G. Irvine, of the Minnesota State Board of Health, and others.

The sale of Christmas Seals for carrying on the public warfare against tuberculosis promises to be the largest this year in the seventeen years of this highly praiseworthy public effort, and physicians should encourage their friends to give substantially to the cause. Every man, woman, and child in the country should give a Christmas present to this cause.

The committee from the Board of Councillors of the Minnesota State Medical Association, recommended at its last meeting to secure a full-time secretary of the State Association, has issued a letter to the County Medical Societies setting forth the advantages of such a plan. Drs. H. M. Workman, Carl Drake, and W. F. Braasch (chairman) compose the committee.

At the December meeting of the Lymanhurst and Parkview Medical Staffs in Minneapolis papers will be presented on "Anesthesia in the Tuberculous Patient," by Dr. R. E. Farr; "Surgery of the Genito-urinary Tract and the Chest,"

by Dr. S. R. Maxeiner; and "Surgery of the Abdomen and Lymphatic System," by Dr. R. R. Cranmer. The meeting will be held on December 23, and all physicians are invited to attend it.

The Minnesota State Board of Health now recommends state-wide vaccination against smallpox, accompanying its recommendation with the statement that "history teaches that whenever virulent smallpox appears in a community not thoroughly protected by vaccination, a deadly epidemic may be predicted." Over 2,300 cases have been reported in Minnesota since Jan. 1, 1924; and there have been 121 deaths up to Nov. 18.

The Hennepin County Medical Society held its annual memorial meeting last month when biographical sketches were read of the following physicians who had died since the meeting of 1923: Dr. George Edgar Benson (1877-1923), Dr. Edward Eldee Austin (1854-1923), Dr. George William Kirmse (1883-1923), Dr. John Michael Egan (1883-1923), Dr. D. Edmund Smith (1867-1923), Dr. Ozias Chapman (1839-1924), Dr. Olaf K. Eggen (1882-1924), Dr. John Alexander Monahan (1865-1924).

The Fourth Annual Clinic held at Mitchell, S. D., on November 11 and 12 was a decided success. Ten or twelve well-known specialists from outside the state gave clinics or presented papers, the clinical material was abundant, and the two hospitals, St. Joseph's and the Methodist State, met the hospital requirements of the occasion. The entertainment by the Mitchell physicians and surgeons could not have been excelled. These annual clinics are well worth maintaining, although the task of conducting them is a big one.

#### NORTHWESTERN DISTRICT MEDICAL SOCIETY OF NORTH DAKOTA

A regular meeting of the Northwestern District Medical Society was held Thursday November 6 at Minot, N. D., at the Leland Hotel. Dinner was served at 6:30. A very pleasing number of members were present, and much enthusiasm was displayed.

Following the business session, Dr. W. C. Fawcett, of Starkweather, president of the State Medical Association, gave a talk on the organization and need of every doctor belonging to the medical society. Dr. A. J. McCannel, of Minot, Secretary of the State Medical Association, presented suggestions for redistricting the state in order to bring about greater attendance to the medical meetings in some parts of the state. Dr. E. M. Ransom, of Minot, Coun-



cillor of the Northwestern District Society, gave very pertinent suggestions regarding each member doing his part in every medical meeting. Dr. Carl A. Dragstedt, of Kenmare, presented a paper on "Acute Dilatation of the Stomach." Dr. P. A. Nestos, of Minot, gave a report on the Inter-State Postgraduate Association of America, which was held at Milwaukee, Wis.

H. G. KNAPP, M.D., Secretary.

#### THE KOTANA MEDICAL SOCIETY OF NORTH DAKOTA

A meeting of the Society, held in Williston on the evening of November 7, was attended by every doctor in Williston with one exception and by every doctor in Williams and McKenzie Counties with two exceptions. This attendance is the more remarkable considering the season of the year and the fact that some of those in attendance drove from fifty to sixty miles to be present.

Dr. W. C. Fawcett, of Starkweather, President of the North Dakota Medical Association, spoke on the need of complete organization of the medical profession.

Dr. A. J. McCannel, State Secretary, spoke on the need of a rearrangement of the present Councillor Districts.

Dr. E. M. Ransom, Councillor for the Fourth District, read a paper on "The Etiology, Diagnosis, and Treatment of Leucorrhea."

All three addresses were generally discussed, and judging from the interest expressed this society, which has been rather quiescent for some time, gives promise of being one of the liveliest in the state.

A. J. McCANNEL, M.D.

#### Drug Stock for Sale

Minnesota physician desires to dispose at once of his nearly new drug stock at half cost price. Address 158, care of this office.

#### Locum Tenens or Large Country Practice Wanted

I desire a position to do substitute work or will take over a country practice if the field is a large one. Address 157, care of this office.

#### An Experienced Gynecologist Desires Association With a Clinic

Can furnish the best of hospital and other references. Work with a clinic doing a large business is desired. Address 163, care of this office.

#### Opening for a Specialist

In eye, ear, nose, and throat work, an internist, or a children's specialist, in a town of 25,000 with a doctor and a dentist. Address 160, care of this office.

#### Good Location and Office in Minneapolis

An excellent location and an office with a dentist can be had at 3805 Nicollet Ave., Minneapolis. A fine modern heated apartment is also open on the same floor. For information, telephone Colfax 2754.

#### Work Wanted

A recent graduate just beginning practice in Minneapolis desires work for a part of the day or night service or as a laboratory technician with a hospital, a clinic, or a physician. Address 164, care of this office.

#### Practice for Sale

General practice in northwest central part of Minnesota, in town of 600. Prosperous farming and dairying community, with no competition. \$6,000 cash practice last year. Will sell for price of equipment. Good reason for selling. Address 159, care of this office.

#### Laboratory and X-Ray Technician Wants Position

A graduate from the laboratories of the Minneapolis General Hospital desires a position. Can do all general laboratory work, including Wassermanns, etc., and x-ray work; and is a good typist. Address 155, care of this office.

#### Wanted, An X-Ray and Laboratory Nurse

Position open in new modern Tuberculosis Institution in Northern Minnesota; excellent opportunity for one thoroughly familiar with x-ray technique and general laboratory methods, also to assist in heliotherapy. Complete maintenance at hospital. State salary desired, references, and when available. Address 156, care of this office.

#### Physician's Office Furniture, Etc., For Sale

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford, N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

#### A Practical Course in Standardized Physiotherapy

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

# THE JOURNAL-*LANCET*

Represents the Medical Profession of  
**Minnesota, North Dakota, South Dakota, and Montana**  
The Official Journal of the  
**North Dakota and South Dakota State Medical Associations**

PUBLISHED TWICE A MONTH

New Series  
Vol. XLIV, No. 24

MINNEAPOLIS, DECEMBER 15, 1924

Per Copy, 10c  
A Year, \$2.00

## THE VALUE OF BLOOD-SMEAR EXAMINATION IN MEDICINE AND SURGERY\*

BY RUDOLPH C. LOGEFEIL, M.D., M.S.

Sivertsen Clinic, Minneapolis  
MINNEAPOLIS, MINNESOTA

I have selected this subject because I believe that most practitioners do not realize the important information that can be derived from examination of blood smears. I have been led to this conclusion by various observations during my association with hospital staffs, as well as in private practice, especially in consultation work.

The records of one of our large hospitals show that during the past year there were 560 cases in which blood examinations were made. In 278 instances only a white-blood count was made (50 per cent). In only 68 cases (12 per cent plus) was a blood smear study made, although many of the charts showed repeated white blood counts. Most of the smears ordered were on medical cases, although there are many surgical conditions and some in the more limited specialties where blood-smear study is very valuable in diagnosis, as well as in prognosis.

Because of this general apparent lack of blood-smear study, I thought it well worth while to review the various conditions in which blood-cell examination is of value. I consider it so important that if I had to choose between having a blood smear or the much used leucocyte count on a patient, I would much prefer the former, as it would tell me practically everything that the latter might and a great deal in addition.

Before starting this discussion let me emphasize that a good blood smear is essential if proper

interpretation is to be made. Time will not allow me to discuss the proper technic of making a blood smear, but may I merely say one must keep in mind the cells which are desired to be studied in making the smear. When red-blood cells will be the main point of study a thin smear should be made and dried quickly to avoid contraction of the cells. The slide should be washed in freshly distilled water until the normal color of the hemoglobin in the cells is not obscured by the basic element. Where the white-blood cells are the point of interest, a thicker smear should be made and great care taken so that there is no over-staining. It is my custom to make two smears always, one thin one and one thick one for the reasons mentioned above.

I shall discuss the subject from three standpoints. First, those conditions or diseases in which it *gives the diagnosis*; second, those in which it is an *aid in making the diagnosis*; and, third, those in which it is an *aid in determining the prognosis*.

### A. DISEASES OR CONDITIONS IN WHICH BLOOD-SMEAR STUDY GIVES THE DIAGNOSIS

1. *Leukemia*.—In myelocytic or lymphatic, acute or chronic, the diagnostic value of the blood smear is accepted and is known to all practitioners. However, it has been a tendency to depend on an increase in the leukocyte count to make the diagnosis or at least to indicate the importance of blood-smear study. This is a mistake, for no

\*Presented before the Hennepin County Medical Society, April 30, 1924 and at the meeting of the Minneapolis Clinic Week, May 6, 1924.



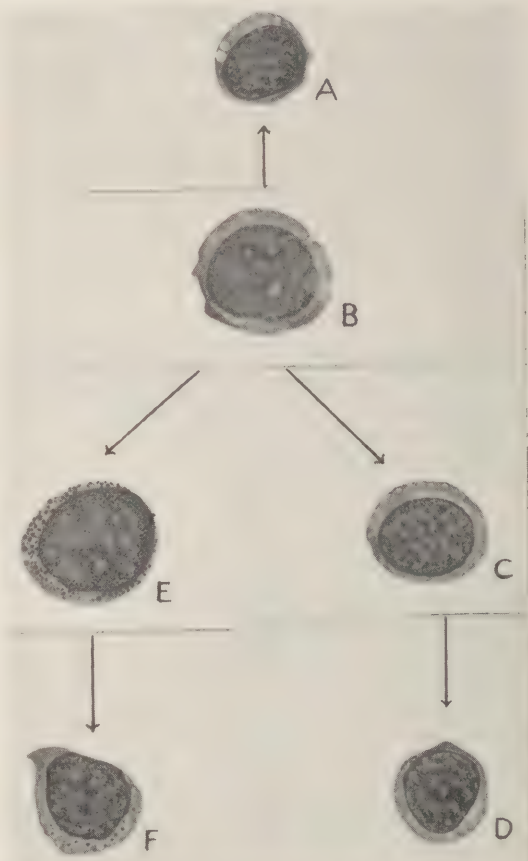
less a man than Pappenheim has repeatedly emphasized that a leukemia may exist without any increase in the leukocyte count. All hematologists are aware of this fact, and many cases have been reported in the literature, especially of the acute type, where not only no leukocytosis was present but a leukopenia actually existed. A prominent physician of this city recently died from acute leukemia and never had a leukocyte count over 7,000 until three days before death, when it rose to 17,000. The author<sup>1</sup> reported a case of mixed leukemia recently where the leukocyte count when the patient first saw the physician was only 11,400. The child complained chiefly of slight pains in the abdomen, arms, and legs, of being tired most of the time, and of having a poor appetite and losing in weight. The physical examination was entirely negative except for somewhat enlarged reddened tonsils and a slight fever. Tonsillectomy was advised and done, but the real condition that the child suffered from was not realized until she did not make the proper recovery from the tonsillectomy, when a blood-smear study revealed a condition of acute leukemia. This case illustrates the need of careful blood-smear study before any surgical operation.

The marked fluctuation which occurs in leukocyte counts in leukemia is well illustrated by Fineman's<sup>2</sup> case, where during the course of the disease it varied between 2,300 and 646,000. He reports a rise of 71,000 in six hours followed by a fall of 62,000 in three hours. This illustrates why a white-blood count is very unreliable as an index of the condition present. The literature is full of reports of cases with vague symptoms, such as soreness of the mouth and gums or bleeding from the nose accompanied by fever and general malaise with a practically normal leukocyte count, no enlargement of the spleen or lymph glands, in fact none of the characteristic clinical symptoms of leukemia as yet, in which a blood smear was the only thing that indicated the real cause of the symptoms, namely, leukemia. Even though the leukocyte count may be increased the blood smear must tell us whether we are dealing with leukocytosis or a leukemia. To know this early is essential if we are to give the proper treatment and prognosis.

Although an increase in the number may be a sign of the presence of a simple leukocytosis or a leukemia, the crucial sign of the presence of one or other of these conditions can be found only in the qualitative nature of the cells present. In both conditions early types of cells have been found in the blood, but in leuko-

cytosis when early forms are present at all they are generally more or less scarce and are then only the immediate "ontogenetic precursors" of the mature leukocyte, for example, a few myelocytes or metamyelocytes. In leukemia large numbers of early forms appear in the blood at the onset and not only the immediate "ontogenetic precursors" but also all the "phylogenetic prototypes," often back to the original parent cell, are found. For example, in myelogenous leuke-

PLATE I



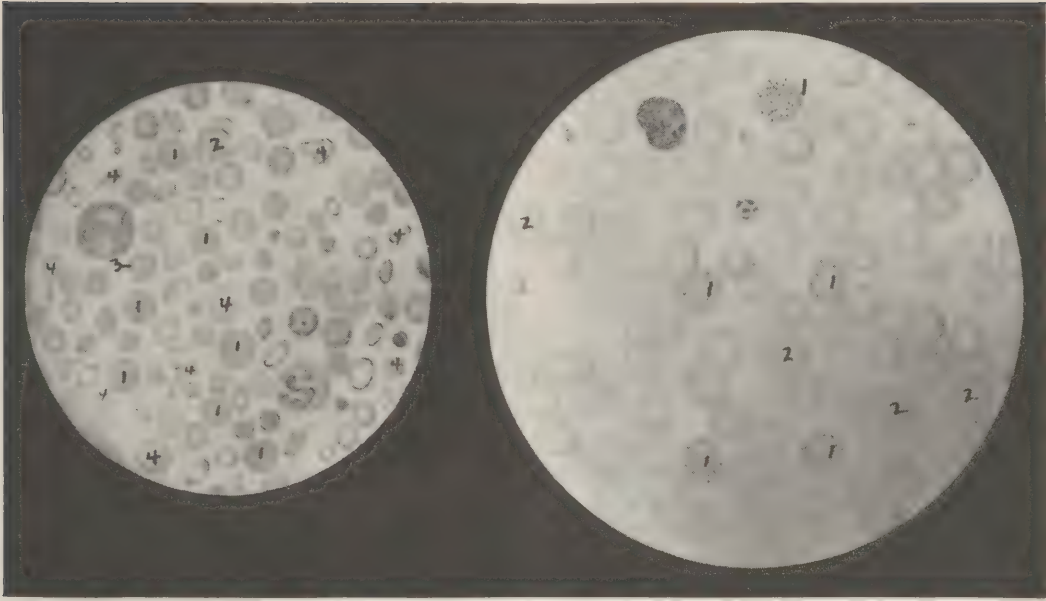
- Cell A: An immature lymphocyte in early stage of development from stem cell (type B).  
 Cell B: A lymphoidocyte or so-called stem cell. Note fine mesh-work distribution of chromatin in nucleus, also nucleoli.  
 Cell C: Also immature lymphocyte, somewhat larger but about same stage of development as Cell A.  
 Cell D: Also immature lymphocyte, but in later stage of development than Cells A or C. Note coarser distribution of chromatin in nucleus.  
 Cell E: Leucoblast—A myeloid cell in first stage of development from stem cell (type B).  
 Cell F: Promyelocyte—A myeloid cell in later stage of development than leucoblast (cell E).

Note the progressive increase in coarseness of chromatin from cell B to E and E to F, also the disappearance of the nucleoli in the stages of development beyond type E.

mia we find not only myelocytes and promyelocytes, but leukoblasts and even the immature parent-cell form, the so-called lymphoidocyte.

PLATE II

PLATE III



Photomicrograph of blood smear in a case of pernicious anemia.

Note: 1. Hyperchromatic megalocytes. 2. Megaloblast. 3. Basophilic stippling. 4. Anisocytosis and poikilocytosis

Photomicrograph of blood smear in a case of lead poisoning.

Note: 1. Cells with marked basophilic stippling. 2. Polychromatophilic cells.

(Plate I, Cells B. E. F.) Also, in leukocytosis the immediate precursors of the mature cells bear the brunt of the stimulus which induces regeneration in the hemopoietic tissues, but in leukemia the parent cell forms are the ones receiving the stimulus.

A study of the blood smear will also tell us whether we are dealing with a chronic or an acute leukemia, which is very important in treatment and prognosis. In acute leukemia there is a greater percentage of the early parent-cell form, the so-called lymphoidocyte. (Plate I Cell B.) Shortly before death they may reach a percentage of 80 or higher. Cells in the next stage of maturity, for example, the leukoblast in the myelogenous type, are also much more abundant in the acute than in the chronic forms. In chronic leukemia these parent-cells or most immature forms are always present, but in smaller percentages with the more maturing types predominating, for example, in chronic myelogenous leukemia lymphoidocytes may be present from 5 to 10 per cent with a somewhat higher percentage of leukoblasts, still more promyelocytes and a predominance of myelocytes. (Plate I, Cells B. E. F.)

Hence the blood smear is the all-important study to appreciate the presence and nature of a leukemic condition, as well as to distinguish it from an ordinary leukocytosis.

2. *Pernicious Anemia*.—I need only mention this condition as the presence of immature and pathological types of red-blood cells, especially the polychromatophilic megalocytes, along with hyperchromasia as characteristic diagnostic features are well known to all. The blood smear is the most reliable means of diagnosis which we have. Let me remind you, however, that in some severe anemias of the simple chlorotic type, particularly those due to intestinal parasites, chiefly *dibothriocephalus* and also malignancy, syphilis, myxedema, hemolytic anemias, and some associated with sepsis, a somewhat similar blood picture may be found. However, if we realize that in the latter conditions the important factor is blood destruction while in the former, defective blood formation, they can usually be easily distinguished. (Plate II.)

Remissions and relapses in pernicious anemia are often first detected by study of the blood smear. When the bone marrow finally ceases to function, the picture of an aplastic anemia is seen, which would indicate a very poor immediate prognosis.

3. *Aplastic Anemia*.—Besides anemias of different types that may terminate with aplasia, there is a condition with aplasia of the marrow that at present has a distinct enough picture to be considered a disease entity. This is known as *idiopathic aplastic anemia*. The striking things



in this picture are a severe anemia with no immature forms of red blood cells as evidence of regeneration on the part of the bone marrow.

Overwhelming sepsis, excessive amounts of radium or the Röntgen rays, benzol, and gas poisoning are other causes of a blood picture of aplastic anemia. The presence of these causes often can be suspected when the blood picture of aplastic anemia is found. Dr. Hal Downey recently told me of a case of septicemia which he had diagnosed from the blood smear before a positive blood culture had been obtained.

4. *Leukanemia*.—This term was introduced by von Leube<sup>3</sup> to denote a condition of the blood presenting the chief features of leukemia and of pernicious anemia. The qualitative changes in the leukocytes may be seen without any actual increase in their number. In some cases reported there has been an actual leukopenia. The red cells may fall below 1,000,000 with a definite hyperchromasia and the usual picture of irritation or malfunction of the red marrow.

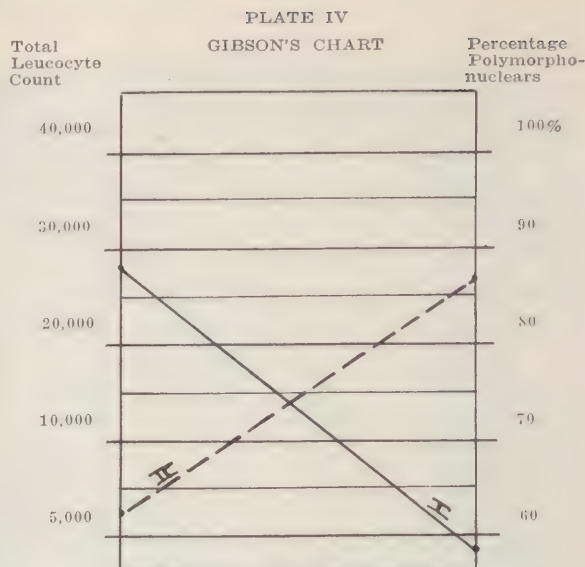
Post-mortem examination of these cases gives the impression that the condition is primarily a leukemia with a blood picture of severe secondary anemia.

Gulland and Goodall,<sup>4</sup> Ordway and Gorham<sup>5</sup> believe the term should be dropped. A review of the literature shows that leukanemia as an entity is still an open question. However, it illustrates the great variability of the blood picture in disease, especially leukemia, and emphasizes the necessity of repeated examinations of the blood before a conclusion can be reached.

5. *Mixed Leukemia*.—This is a very rare condition, and whether or not it can exist has been a much debated subject. I reported a case recently which I could classify in no other way, for the details of which I will refer you to this paper. The condition can be diagnosed only from a blood-smear examination.

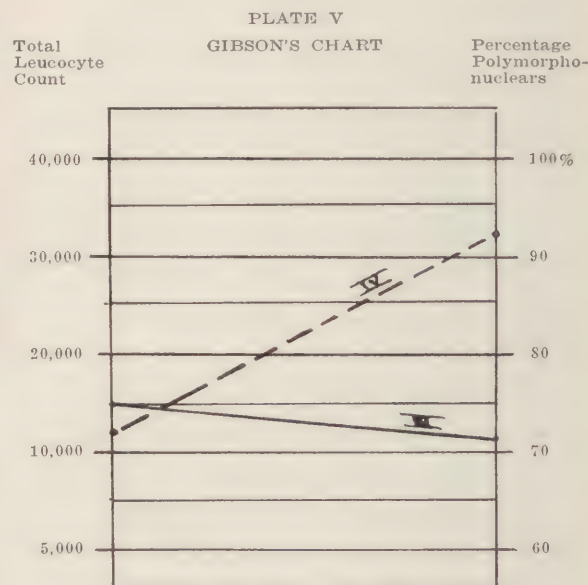
6. *Carcinoma and Sarcoma*.—Gruner<sup>6</sup> believes that he can diagnose malignancy, in many instances long before there is any clinical evidence, by means of a study of the leukocytes. He has described certain degenerated changes which he has found to be consistently present in them in these conditions. He has written a book on the subject, as well as published a comprehensive short article, to which I will refer you. Although other hematologists have not been able to diagnose malignancy as accurately as Gruner still they believe that what Gruner sees in the leukocytes is actually there and cannot deny his assertions.

7. *Malaria*.—I am sure I need but emphasize



Case 1. Otitis media, mastoid suspected. No operation, recovery.

Case 2. Pelvic cellulitis, abscess, symptoms vague. Operated; drained large abscess.



Case 3. Lobar pneumonia, fifth day. Prognosis, good. Crisis, six hours later, recovery.

Case 4. Lobar pneumonia, bilateral, ninth day. Prognosis, bad. Died eight hours later.

the necessity of finding the characteristic plasmodia in the red-blood cells before making this diagnosis. A relative lymphocytosis is also usually present.

8. *Lead Poisoning*.—The presence of marked or moderate basophilic stippling of the red-blood cells with some immature forms, and a mononucleosis when found in a case which otherwise presents only mild clinical symptoms, are nevertheless diagnostic of this condition. The amount

and degree of these abnormal findings are also an index of the severity of the condition. Frequent blood smear studies at regular intervals is a great aid in following the progress of this condition, the percentage of mononuclear cells and red blood cells showing basophilic stippling decreasing as the condition improves. (Plate III.)

9. *Glandular Fever*.—The blood-smear examination is chiefly significant in differentiating this condition from lymphatic leukemia. Again let me emphasize that the number of leukocytes is not so important as a study of the character of these cells. In glandular fever there is an absence of the early progenitors and parent-cell forms of the lymphocytes, which are numerous in leukemia. Longcope<sup>7</sup> has reported a series of ten cases which he refers to as infectious mononucleosis. The prognosis is good in this condition, while in leukemia it is fatal.

10. *Acute Lymphadenosis*.—Downey and McKinlay<sup>8</sup> have reported a series of nine cases to which they give this title in distinction to that of glandular fever, the latter occurring more in epidemics with more acute symptoms and having a somewhat different blood picture. The condition as they found it occurred in young adults showing an acute tonsillitis or pharyngitis with systemic reaction, absence of anemia, enlarge-

PLATE VII



Photomicrograph of blood smear from a case of bone cancer.

Note: 1. Normoblasts. 2. Myelocytes. 3. Tumor cells.

ment of lymphatic glands, and frequently of the spleen, and a comparatively rapid recovery.

The most important thing is to distinguish the condition from lymphatic leukemia, either the

PLATE VIII  
ARNETH COUNTS

Class	I	II	III	IV	V	Index
Cells						
Normal Count	5	35	41	17	2	40
Scarlet fever	34	40	14	1	0	74
Typhoid fever	47	33	20	0	0	80
Erysipelas	45	40	14	1	0	85
Pneumonia, fatal, lobar	63	31	5	1	0	94



acute or chronic form. This is somewhat difficult without a careful study of the character of the lymphocytes. All the cases showed a leukocytosis, with counts running from 11,000 to 23,000 with 96 per cent lymphocytes, mostly of the larger variety. However, they state that in every case it is possible to determine the nonleukemic nature of the blood, even though the clinical picture suggests leukemia. The blood was characterized by the presence of a large number of atypical leukocytoid lymphocytes. The absence of the early immature form of lymphocyte, as well as the parent-cell form, easily ruled out leukemia. They deal with the subject very thoroughly both from a clinical and a morphological standpoint, and have some excellent plates illustrating the differences in the lymphocytes as found in this condition and those of leukemia. Again we have a condition where the prognosis is good which is the all-important thing to know.

11. *Sickle-cell Anemia*.—The first case was reported by Herrick,<sup>9</sup> who gave the condition this name. Huck<sup>10</sup> recently reported a series of cases, but Sydenstricker<sup>11</sup> made a very comprehensive study of the condition and thus established it as a disease entity. The disease presents itself in two phases: the latent, where symptoms and physical signs are few and only suggestive, and special methods of blood examination necessary for its recognition; and the active, in which the symptoms, physical signs, and the blood picture are typical. He describes the condition as appearing only in negroes and being characterized clinically in the active phase by the presence of leg ulcers and anemia, the former resembling syphilitic ulcers, for which they are often mistaken. Other symptoms often found are inability to work due to weakness, muscular pain or stiffness, and often sharp pain in the epigastrium, especially after eating. Anemia is present, and fever may reach 101°. The course of the disease is one of a series of remissions and relapses, the latter lasting from three to six weeks. The diagnosis of the condition can be made only by a study of the blood smear or suspension of blood in fresh preparation, where a sickling of the red-blood cells is found. This sickle-cell condition is inherited, apparently, according to the Mendelian law for the inheritance of the single factor. Slight anisocytosis, poikilocytosis, and polychromatophilia with occasional nucleated reds are other features of the blood smear. The condition is familial. Blood examinations of more than 300 whites have been made with special reference to "latent sickling," but no indications of it have been observed. Thirteen cases, however,

were found in a similar number of negroes, exclusive of its occurrence in the families in the cases reported, according to Sydenstricker. It apparently is not so uncommon when the condition is kept in mind and suspicious cases examined for "sickling."

12. *Filariasis*.—Although more commonly found in tropical countries, one species of the filaria sanguinis hominis is not uncommonly found in various parts of the United States. Any cases of chylous, lymph scrotum, tumor of the groin, or elephantiasis should lead us to make a careful examination of the blood for the filaria. A slide of the fresh blood is prepared in the usual way but after 8:30 in the evening and examined at once, as they are the most numerous in the blood at this time of the day. Eosinophilia is a constant feature of recently infected cases and occurs to a less extent in chronic cases. It is most marked in the hours when filaria are fewest in the peripheral blood and decreases as the filaria increase.

13. *Trypanosomiasis*.—Cure can be expected in this disease only when treatment is begun early in the infection, so it is very important to recognize the presence of trypanosomes soon after infection occurs. If a person who has lived in Africa shows an irregular fever not controlled by quinine, change of character, loss of energy, or emaciation, it should be thought of. General glandular enlargement and, in Europeans, erythema are very suggestive, according to Todd.<sup>12</sup> Although the disease may be recognized from its symptoms, a definite diagnosis can be made only by demonstrating the presence of trypanosomes, which may be established by seeing them in blood or gland juice, or cerebrospinal fluid, or by the inoculation and infection of experimental animals. The simplest way of examining the blood is to make a fresh coverslip preparation and examine it with a magnification of about 400 diameters. The smear may also be stained in the usual way before examining. Trypanosomes may be more easily found by concentrating the blood by centrifuging a mixture of blood with a 1 per cent solution of sodium citrate in normal saline to prevent coagulation.

14. *Relapsing Fever*.—According to Todd<sup>13</sup> a definite diagnosis can be made only by demonstrating the presence of the spirochetes. They are easy to find by examining a fresh unstained coverslip preparation of blood from the finger or ear. The preparation should be a thin one and examined with an oil immersion lens and with a light that is not too intense. The moving spirochete can easily be seen. They can also be

demonstrated in the usual stained smear.

Relapsing fever may occur in all parts of the world where men live in verminous surroundings, that is, wherever human beings are crowded together under unsanitary conditions because the lice and ticks which transmit the disease then increase. It has been known to destroy armies. The symptoms vary greatly during a single epidemic, as well as in different epidemics, but the characteristic remitting fever with systemic reaction of generalized pain is quite constant.

15. *Rocky Mountain Spotted Fever*.—The cause of the lesion of this infectious disease is a minute intra-cellular and intra-nuclear bacterial micro-organism which Ricketts probably saw in the blood of his patient, according to Woldach.<sup>14</sup> Giemsa's stain alone gives satisfactory results for a study in smears. A recent article by Strong<sup>15</sup> seems to show that the rickettsia group are probably responsible for typhus, as well.

The distribution of this disease is that of its carrier, the wood-tick, and includes the Western states in which we find the Rocky Mountain ranges. The clinical picture of a beginning chill followed by a sudden rise in temperature, pulse, and respiration, and the appearance on the third or fourth day of the fever of the characteristic eruption, is probably known to all of you. The presence in the blood of this micro-organism is absolutely diagnostic.

16. *Pseudoleukemia of von Jaksch*.—According to Pappenheim,<sup>16</sup> it is an anemia of the hyperchromatic pernicious megaloblastic type associated with myeloid metaplasia of the spleen, due to inflammatory changes of a toxic nature. In other words, it is a metaplastic leukocytosis of a leukemic character originating in the spleen. The clinical picture with anemia and an enlarged spleen may resemble leukemia, but it can be easily differentiated by a study of the blood picture, which shows a severe anemia in the absence of true leukemic-cell types.

In concluding this list let me re-emphasize the importance of the blood-smear study in differentiating simple from toxic anemia, and simple leukocytosis from leukemia, especially when sepsis is present. Many hematologists have discussed the relation of sepsis and leukemia, especially Erb,<sup>17</sup> Eppenstein,<sup>18</sup> Naegeli,<sup>19</sup> Türk,<sup>20</sup> and Herz.<sup>21</sup> They cite cases where certain septic infections showed a blood picture very much like lymphatic leukemia, except that the early immature forms of lymphocytes were absent which ruled out a leukemia. (Plate I, A. B. C.)

Cabot<sup>22</sup> cites four cases of acute infection including lymphangitis, furunculosis, sore throat,

and cervical adenitis. They all showed a very high leukocyte count, with a high percentage of lymphocytes, and were liable to be confused with lymphatic leukemia, but all were streptococcic infections.

Sanders<sup>23</sup> reported a case of Ludwig's angina where 95 per cent of the cells were lymphocytes.

The absence of immature forms of white-blood cells is the important thing in distinguishing these cases from leukemia, which of course is essential with regard to treatment, as well as to prognosis. This can only be done through a careful study of the qualitative nature of the leukocytes as seen in the blood smear.

#### B. DISEASES IN WHICH BLOOD SMEAR STUDY IS AN AID IN MAKING THE DIAGNOSIS

I shall consider the various diseases and conditions which affect the character and number of the various types of cells of the blood.

I. *The Polymorphonuclear leukocytes*.—Sondern,<sup>24</sup> in reviewing the data from more than fourteen hundred surgical cases, draws the following conclusions: "The increase in the relative number of polynuclear cells is an indication of the severity of toxic absorption, and the degree of leukocytosis is an evidence of the body resistance toward the infection. Furthermore, it was found that within a reasonable limit, the figures obtained would justify an inference as to the probable presence or absence of a purulent exudate. Purulent exudates were rarely, if ever, present with low polynuclear percentages, irrespective of the height of the leukocyte count, while very high polynuclear percentages almost invariably indicated their presence, even if the total leukocyte count was low."

Gibson<sup>25</sup> has made somewhat similar observations in two hundred cases at the St. Luke's Hospital. He advocates the use of a standard chart, by means of which the important factor of the relation between polynuclear increase and the leukocyte increase is graphically demonstrated. The higher the polynuclear percentage, as compared with the leukocyte count, the greater the probability of a purulent exudate. He states that the differential blood count and its relation to the leukocytosis are the most valuable diagnostic and prognostic aid in acute surgical diseases furnished by any of the methods of the blood examination. As this relative disproportion between the leukocytosis and the percentage of polynuclear cells is of so much more value than the findings based on the leukocyte count alone, this latter method should be abandoned in favor



of the newer and more reliable procedure. (See Plates IV and V.)

H. B. Taylor<sup>26</sup> draws the same conclusion from a study of several hundred gynecological cases at the Roosevelt Hospital.

J. F. McKernon<sup>27</sup> has given this method of examination a careful trial in suppurative conditions associated with or following middle-ear diseases and is also enthusiastic about its diagnostic and prognostic possibilities. He reports over two hundred cases. He found that suppurative bone processes do not give figures as high as seen in suppurative conditions in the soft tissues, probably on account of lower toxic absorption.

Uniform results are not as often obtained in children as in adults, nor where pus is so confined that no toxic absorption occurs, or when a purulent exudate is the result of tuberculous or typhoid infection.

Noehren,<sup>28</sup> in a study of seventy-two cases of appendicitis, states that the estimation of percentage of polynuclears alone is more reliable than either of the preceding methods, and, therefore, it, together with the fact that it is the one most easily made, is the method to be recommended. A polynuclear percentage of ninety or more indicates a severe process that needs immediate operative interference. A percentage below seventy-eight means a "safe" or a mild process, while a percentage between the two extremes speaks for the one condition or the other according as it approaches the one extreme or the other.

Wilson<sup>29</sup> modified Gibson's graphic presentation somewhat and formed what he called the resistance line. This is simply a visual expression of the disproportion between the total leukocyte count and the polynuclear percentage. Starting with normal figures for these factors, 10,000 leukocytes and 70 per cent P.M.N.'s, and assuming that they normally increase in the ratio of one per cent of polymorphonuclears to one thousand total leukocytes per cubic millimeter, a simplified formula is obtained as follows:

$(T-10) - (P-70) = I.R.$  (Index of Resistance.)

$(T - (P-60)) = I.R.$   $T = \text{Leukocyte count}$   $P = \% \text{ P.M.N.'s}$ . A persistent  $I.R.$  is a bad prognostic sign and may mean the onset of a complication. He reports cases done in the laboratories of the St. Mary's Hospital at Rochester, and his findings support Sondern's original hypothesis.

Lampe<sup>30</sup> believes that the resistance line of Sondern is of distinct value and deserves place among clinical methods in the differential diagnosis of a case. He cites many cases where it has proved of diagnostic and prognostic value.

Rehn<sup>31</sup> cites cases with falling leukocyte counts where large masses of pus were found on operation, and the increased percentage of polynuclear cells was the only indicator of the true state of affairs.

Sondern also applied his resistance line to cases of pneumonia and found it of distinct prognostic value. A negative index of resistance he found to be a bad sign.

Walker<sup>32</sup> applied the index resistance line in a study including observations in one hundred and five cases of various diseases, thus distributed; pneumonia, forty-six; influenza, thirty-five; empyema, twelve; and measles, twelve. He found it a great aid not only in the prognosis of pneumonia, but in detecting the onset of complications. In influenza and measles the index resistance line was very illuminating in following the course of the disease as the development of complications or the onset of other mild infections, such as bronchitis, alveolar abscess, tonsillitis, or arthritis was marked by a sudden drop of the leukocyte index to negative, returning in a few days to positive, apparently as the resistance of the individual increased and overcame the infection.

In the cases in which I have applied it, it has proven of distinct prognostic and diagnostic value. Walker believes it to be as sensitive an indicator of trouble as the temperature or other clinical signs. However, I believe it should be used only as a factor in completing the study of any given case and should always be considered in the light of other clinical and laboratory findings.

II. *The Lymphocytes*.—Most authorities agree that lymphocytosis exists in adults when the number of lymphocytes in the blood exceed 25 per cent.

(a) Focal infection: Daland<sup>33</sup> has emphasized the importance of lymphocytosis in dental infection, especially in periapical dental infection, the value of which is increased when leucopenia exists. He found lymphocytosis occurring only twice in one hundred cases of chronic disease with no focal infection. In those showing focal infection 54 per cent showed a lymphocytosis, with an average percentage of lymphocytes of 40. The lymphocytosis disappeared in from five to eight weeks after the removal of all foci of infection. In some cases where the lymphocytosis persisted, other foci of infection were suspected and discovered in many cases. The organism causing the lymphocytosis is the streptococcus hemolyticus and viridans. He concludes that lymphocytosis indicates that toxin or strep-

tococci, or both are entering the blood.

(b) Pertussis: Many cases show a marked leukocytosis with a very high relative lymphocytosis in the early stages of this disease. I remember the first case which came to my attention alarmed me very much, as I was wondering if I was dealing with a co-incidental infection of whooping-cough with acute lymphatic leukemia. However, a careful examination of the blood smear showed no early forms of immature lymphocytes present, and a survey of the literature told me that the picture was not at all uncommon. So, in an early case of pertussis where the diagnosis is still in doubt, if the blood smear shows a high percentage of lymphocytes, along with a leukocytosis, a definite diagnosis can be made. In contrast, scarlet fever has an eosinophilia with no increase in the percentage of lymphocytes.

(c) Lymphosarcoma: Most of these cases show an absolute or relative lymphocytosis, according to Pappenheim,<sup>16</sup> while Naegeli<sup>19</sup> reports a decrease as being more common. But the particular thing of interest is that many of the lymphocytes are of the Rieder type, which is a pathological form of lymphocyte. They represent a special type of leukosarcomatous cells and indicate a very acute disturbance of the process of cell proliferation. There exists an increase in the number of cells without differentiation. The nucleus alone becomes fully formed, while the cell remains immature. Usually the nucleus becomes super-developed, as it often takes on a polymorphous character. In short, the nucleus reaches a state of maturity too quickly for the protoplasm to keep pace with it, with the result that the cells do not function properly. The percentage of the Rieder type of lymphocytes in this condition often runs very high and is quite characteristic.

(d) Lymphatism: Here we find an anemia of the chlorotic type. The leukocyte count may be slightly increased, but the most characteristic thing is the absolute or relative lymphocytosis, which is almost always present. If we should find such a blood picture we should be on our guard and use every other possible means of determining whether or not this feared condition is present.

(e) General: In addition to the above there are a lot of conditions which have as a characteristic a relative lymphocytosis, which in itself may prove a valuable aid in making a diagnosis. The most common ones are cholera infantum, rickets, pertussis, pneumonia, congenital syphilis, scurvy, smallpox, malaria, pernicious anemia,

typhoid, tuberculosis, leprosy, diseases of glands of internal secretions, such as diabetes and Addison's disease, many post-toxic and infectious conditions, many chronic infectious diseases, chlorosis, measles, mumps, and following injections of certain drugs, of which pilocarpin and iodine are the most important.

(f) Contrast: In contrast to the above conditions let us remember that lymphocytosis is always absent in acute streptococcus and staphylococcus infections.

### III. THE EOSINOPHILE

Most authorities agree that eosinophilia exists when the number of eosinophilic leukocytes in the blood exceed 4 per cent. The following are the conditions of which eosinophilia is characteristic:

1. Eosinophilic leukemia: Such a case was reported by Giffin<sup>24</sup> recently. Myelogenous leukemia acute and chronic also usually shows an increase.

2. Scarletina: It is the only acute infectious disease, and occasionally the increase is considerable.

3. Helminthiasis in all forms: This includes oxyuris, trichocephalus, distomiasis of the lungs, ascariis, tenia, bothriocephalus, ankylostomiasis, filaria, anguillula, echinococcus, bilharzia, but, most important of all, trichinosis.

4. Bronchial asthma.

5. Skin diseases: Especially psoriasis, pemphigus, pruritus senilis, dermatitis herpetiformis, quicksilver dermatitis, urticaria, prurigo, and eczema.

6. Neurosis often shows eosinophilia.

7. Post-infectious and post-toxic eosinophilia occurs in the convalescent period of all infectious diseases and toxic conditions.

8. After removal of the spleen.

9. Occasionally in certain malignant tumors, especially of the lung.

10. Polycythemia.

11. Multiple blastomycosis.

12. Proctitis.

13. In certain anaphylactic conditions.

14. Hodgkin's disease.

15. Gonorrheal infection, according to Cabot.

For detailed information in regard to the diagnostic and prognostic value of eosinophilia, I would refer you to the text-books on blood by Cabot and Naegeli.

### IV. MONONUCLEARS

Most hematologists agree that anything in excess of 6 per cent is considered a mononucleosis



and that the main function of the mononuclear cell is phagocytic.

1. Hodgkin's disease: Most cases that I have studied show a definite increase some as high as 30 per cent. The character of the cell is also somewhat important in that they usually show a heavy coarse azurophile granulation and the nuclei tend to be irregular. They often assume a lobulated or polymorphous shape. Downey (unpublished observations) has noted these characteristics in the cases he has studied.

2. Thyrotoxicosis: Head (unpublished observations) and others have emphasized the importance of mononucleosis in this condition. They feel that it is not only an aid in the diagnosis, but also the degree of increase is a measure of the severity of the toxemia.

3. Malignancy: They are often increased in this condition and show some lobulation as well as azurophile granulation.

4. Tuberculosis: The cells are somewhat similar to those seen in carcinoma. Some points of distinction are made by a few hematologists.

5. Subacute bacterial endocarditis: 10-20 per cent have been reported by some men.

Naegeli<sup>19</sup> gives a number of conditions which show an increase in the mononuclears such as anemia, and pseudoleukemia infantum, but in none of these is it as characteristic as those mentioned above.

## V. TRANSITIONALS

Rieux (quoted by Naegeli) first pointed out transitional leukocytosis in chronic appendicitis.

Friedman<sup>85</sup> reports 65 cases of chronic appendicitis in which he found an increase in the percentage of transitionals over that of the normal (2 to 4 per cent). He examined the blood before breakfast or six hours after a meal to rule out digestive leukocytosis. In a series of parallel cases, including peptic ulcer, cholecystitis, renal colic, and cases where the appendix had been removed, he found no increase in the transitionals. He concluded that a finding of transitional leukocytosis was more valuable and checked up better with operative findings than x-ray examinations.

## VI. BASOPHILIA

The finding of this condition is not important in diagnosis, but it has been reported in leukemia, staphylococci infection, and after taking certain drugs.

## VII. GENERAL

There are still a few general conditions in which blood-smear examination is an aid in the diagnosis.

1. Hemolytic jaundice, congenital: The most characteristic thing is the presence of many microcytes, which are spherical in shape rather than the usual biconcave disc. Hyperchromasia, polychromatophilia, and basophilic stippling, as well as nucleated reds, are usually noted. When found in a case of congenital jaundice the diagnosis is practically assured. However, increased fragility of the red-blood cells must be demonstrated also.

2. Myelophthisic anemia: This condition, dependent upon a crowding out of the normal marrow tissue by tumor or tumor-like formations, shows evidence in the blood smears of the resulting increased activity of the remaining marrow tissue. Many blasts and other forms of early marrow cells, as well as tumor cells, occur in the peripheral blood. Otosclerosis, myeloma, chloroma, and metastatic tumors resulting particularly from hypernephroma and cancer will produce this condition. (See Plate VII.)

3. Congenital heart disease: Several cases have been reported in premature infants where no murmurs were present, but which showed an embryonic blood picture affecting both white and red cells.

4. Iodophilia: This phenomenon is characteristic in certain conditions where the polynuclear cells show granules of various sizes and shapes which assume a brownish-red color when stained by the special iodine dye. Wile<sup>86</sup> reports a number of conditions in which the presence or absence of this phenomenon is of value in diagnosis. He emphasized especially that serous effusions may be differentiated from purulent effusions by the absence of the reaction in the former.

5. Splenic anemia: Pappenheim<sup>16</sup> emphasized the importance of lymphocytosis and monocytosis accompanying a picture of secondary anemia and splenomegaly as being quite characteristic. The blood study is of special importance in ruling out other causes of splenomegaly.

## C. PROGNOSTIC VALUE OF BLOOD SMEAR STUDY

I have mentioned the importance of the blood-smear study in prognosis in most of the diseases and conditions as they were previously discussed, so I shall merely summarize the more important:

1. The application of the index resistance line of Sondern, Gibson, and Wilson in infectious and septic conditions.

2. In determining the severity and following the course of pernicious and other types of anemia.

3. In determining the severity and following the course of leukemias.

4. In determining the severity and following the course of lead poisoning.

5. In differentiating a typical lymphocytosis from leukemia.

6. Arneth's count: No paper on this subject would be complete without at least mentioning the interesting phenomena which Arneth<sup>37</sup> was the first to observe in the polynuclear cells of the blood in the course of disease. Time will allow me to make only a brief statement regarding it.

In 1904 Arneth classified the neutrophils on the basis of the number of divisions in the nucleus. The normal count is 5 per cent, 35 per cent, 41 per cent, 17 per cent, and 2 per cent, respectively, in classes I to V. The normal index is the percentage of cells falling into classes I and II (or 40). An increased index (shift to the left) was found to accompany infective diseases. The increased index is taken to mean low resistance or high toxicity with death of phagocytic cells in Classes III and IV (Chamberlain<sup>38</sup>); or an expression of the functional activity of the leucopoietic system (Macfie,<sup>39</sup> Breinl and Priestly<sup>40</sup>); or an index of the ratio between resistance and severity of infection. Schilling<sup>41</sup> regards a record of the count fully as important as a record of pulse or temperature. The count may show the presence of an infective process in an otherwise normal blood picture. Arneth found in pulmonary tuberculosis a shift to the left proportional to the extent of the disease and a return to normal with clinical improvement and cure. All students of this classification agree that a single count is quite valueless in diagnosis or prognosis of any process.

Recent literature on the subject tends to verify Arneth's assertions and to re-emphasize their importance. (See Plate VIII.)

7. Alder<sup>42</sup> lays considerable emphasis on the morphological changes found in white blood cells in infectious diseases with regard to the diagnosis, but particularly as indicating the degree of toxicity, as well as the reaction on the part of the individual, thus aiding one in judging the prognosis. He not only points out changes in the nucleus in regard to segmentation, as Arneth has shown, but also demonstrates changes in the structure of the nucleus, as well as the protoplasm, which he considers equally important. The most important changes in the nucleus are clumping of the chromatin with some blurring, vacuolization, and increased segmentation. The more important changes in the protoplasm are a variable grayish-blue color, indicating a basophilic reaction, and vacuolization, which is marked in cases of great toxicity. The granules also

show some changes such as loss of uniformity of size, color, and intensity of staining reaction with irregular distribution and changes in their number. The eosinophiles take on a blue-grayish color, and there is a definite diminution in the number and position of the granules. The monocytes show bizarre shapes of the nucleus with heavy azurophile granulation, as well as vacuolization. This article is accompanied by an excellent colored plate illustrating these changes.

#### CONCLUSION

Blood smears are important in ruling out many conditions and diseases, as well as in diagnosing them. They have proven diagnostic in a certain number and a great aid in arriving at the proper diagnosis in many more. They are our chief index of the activity of the blood-forming organs and our only means of determining normal from pathological regeneration.

NOTE.—I take this opportunity to express my appreciation to Drs. H. Downey, A. R. Ringoen and A. A. Dalstrom for their valuable help in the preparation of this paper.

#### BIBLIOGRAPHY

1. Logefeil, R. C.: A Study of Mixed Leukemia with a Report of a Case. *Arch. of Int. Med.*, 33, 659-700, 1924 (June).
2. Fineman, S.: A Study of Microlymphoidocytic Leukemia. *Arch. of Int. Med.*, 29, 168, 1922.
3. von Leube, W.: *Deutsch Klinik*, 1903, iii, 177.
4. Gulland and Goodall: *Text-book on Blood, Treat & Co.*, p. 199, 1912.
5. Ordway, T., and Gorham, L.W.: *Oxford Med.*, ii, 753, 1920.
6. Gruner, O. C.: A Study of the Changes met with in the Leukocytes in Certain Cases of Malignant Disease. *Brit. Jour. of Surg.*, iii, 506, 1915-1916.
7. Gruner, O. C.: *The Exact Diagnosis of Latent Cancer*, H. K. Lewis & Co., London, 1919.
8. Longcope, W. T.: Infectious Mononucleosis (Glandular Fever), with a Report on Ten Cases, *Am. J. Med. Sc.*, 164, 781, December, 1922.
9. Downey, H. and McKinlay, C. A.: Acute Lymphadenitis compared with Acute Lymphatic Leukemia, *Arch. of Int. Med.*, 32, 82, 1923.
10. Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia. *Arch. of Int. Med.*, 6, 517, 1910.
11. Huck, J. G.: Sickle-Cell Anemia. *Bull. Johns Hopkins Hospital*, 34, No. 392, p. 335-344, 1923.
12. Sydenstricker, V. P., Hulherin, W. A., and Houseal, R. W.: Sickle-Cell Anemia. *Am. Jour. Dis. Children*, 26, No. 2, p. 132, 1923.
13. Sydenstricker, V. P.: Further Observations on Sickle-Cell Anemia, *Jour. of the A. M. A.*, 38, No. 1, 12, 1924.
14. Todd, J. L.: *Oxford Medicine*, v, 835, 1920.
15. Todd, J. L.: *Oxford Medicine*, v, 817, 1920.
16. Woldach, S. B.: *J. Med. Research*, Boston, xli, 1, 1919.
17. Strong, R. P.: Research in some Aspects of Disease Associated with the Fields of Zoology, Entomology, and Parasitology, *Science*, lvi, No. 1479, p. 507, 1923.
18. Pappenheim, A.: *Examination of the Blood*, Wm. Wood & Co., 1914.
19. Erb, W.: *Septische Erkrankungen und akute Leukämie*, *Deutsch med. Wchnschr.*, 33, 833, 1907.
20. Eppenstein, H.: *Akute Leukämie und Streptokokken-sepsis*, *Deutsch med. Wchnschr.*, 33, 1984, 1907.
21. Naegeli, O.: *Blutkrankheiten und Blutdiagnostik*, Edition 3, Leipzig, 1919, Ver. Wiss. Verleger.
22. Turk, W.: *Septische Erkrankungen bei Verkümmern des Granulozytensystems*, *Wien. Klin. Wchnschr.*, 20, 157, 1907.
23. Herz, A.: *Zur Frage der gemischten Leukämie*, *Wien. Klin. Wchnschr.*, 22, 1030, 1909.
24. Cabot, R. C.: Lymphocytosis of Infection, *Am. J. Med. Sciences*, 145, 335, (January-June) 1913.
25. Sanders, W. E.: Nature of Lymphocytosis in Acute Infections, *J. Lab. and Clin. Med.*, iv, 344, 1918-1919.



24. Sondern, F. E.: The Value of the Differential Leukocyte Count in Diagnosis, *Am. J. of Med. Sc., New Series*, 132, 889, 1906.
- Sondern, F. E.: Present Status of Blood Examination in Surgical Diagnosis, *Med. Record*, lxxvii, 452, 1905.
25. Gibson, C. L.: Value of Differential Leukocyte Count in Acute Surgical Diseases, *Ann. Surg.*, xlviii, 485-499, 1906 (April).
26. Taylor, H. B.: Quoted by Sondern.
27. McKernon, J. F.: Quoted by Sondern.
28. Noehren, A. H.: The Value of the Differential Leukocyte Count in Acute Appendicitis, *Annals of Surg.*, xlvii, 239, 1908.
29. Wilson, L. B.: Value of Sondern's Differential Leukocyte Resistance Line in the Diagnosis and Prognosis of Acute Appendicitis. *Collected Papers of the Mayo Clinic*, p. 280, 1905-1909.
30. Lampe, E. jun.: Ueber den Wert der Sondern'schen Resistenzlinie, etc. *Beitr. z. klin. Chir.*, lxxiv, 231, 1911.
31. Rehn: Ueber den Wert der Blutkörperzählung bei der akuten Erkrankung des Wurmfortsatzes, *Münch. Med. Woch.*, 50, 1700, 1903.
32. Walker, O. J.: An Index of Body Resistance in Acute Inflammatory Processes, *Jour. of the A. M. A.*, 72, 1453, (May 17) 1919.
33. Daland, J.: Lymphocytosis as Diagnostic Sign of

Chronic Periapical Dental Infection in Adults. *Jour. of the A. M. A.*, 77, 1308, (October 22) 1921.

34. Giffin, H. Z.: Persisten Eosinophilia with Hypedleukocytosis and Splenomegaly, *Am. J. Med. Sc.*, 158, 618, 1919.
35. Friedman, G. A.: Transitional Leukocytosis and its Diagnostic Value in Chronic Appendicitis, *Am. J. Med. Sc.*, 158, 545, (October) 1919.
36. Wile, Ira. S.: Blood Examination in Surgical Diagnosis. *Surgery Publishing Co.*, 1908, New York.
37. Arneht: Die Neutrophilen weissen Blutkörperchen bei Infektionskrankheiten. *Jena* 1904.
38. Chamberlain, W. P., and Vedder: A Study of Arneht's Nuclear Classification of Neutrophils. *Phil. J. of Science*, vi, 403, 1911.
39. Macfie, J. W. S.: The Significance of Nuclear Variations of Neutrophile Leucocytes (Arneht Counts) in West Africa. *Lancet* 1, 911, 1915.
40. Breinl, A. and Priestly, H.: Changes in the Neutrophile Picture of Arneht. *Ann. Trop. M. & Par.*, viii, 565, 1914.
41. Schilling, V.: Ueber die Notwendigkeit grundsätzlicher Beachtung der neutrophilen Kernverschiebung in Leukozytenbilde und über praktische Erfolge dieser Methode. *Zeit. f. klin. Med.*, 89, 1, 1920.
42. Alder, A.: Ueber Morphologische Veränderungen an den weissen Blutkörperchen bei Infektionskrankheiten. *Schweiz. Med. Woch.*, 19, 440, 1921.

## THE RELATION OF THE PHYSICIAN TO THE ADMINISTRATION OF THE WORKMEN'S COMPENSATION LAW\*

BY MR. R. E. WENZEL

Chairman of the Workmen's Compensation Bureau of North Dakota  
BISMARCK, NORTH DAKOTA

The administration of the Workmen's Compensation Law may be roughly divided into two parts: the Receiving and the Disbursing or, and perhaps more properly, the Regulatory and the Compensatory.

It is clear, of course, that the physician does not enter into relationship so long as the Bureau is concerned with the matter of classifications, rates, premiums, pay-rolls, dividends, credit merits, audits, etc. Not even when the Bureau concerns itself with one of the original purposes back of the proposals for the establishment of this method of dealing with industrial accidents, namely, deals with the prevention of accidents, does the physician come to play a part, directly at least.

When, however, an individual workman has received an injury in an employment included in the terms of the North Dakota Workmen's Compensation Act, then, and immediately, the physician becomes an important factor in the proper administration of the law. It is my hope to impress upon you just how important a factor the physician really is.

In considering this matter let us endeavor to keep in mind the two great duties that rest upon the Bureau in its effort to administer the law justly, *after* an employee has been injured. The first duty is to make whole the physical being that has been violated; to strengthen, support,

and even to re-construct, so that the injured may be placed in position approximating his former condition as nearly as the best medical skill and experience will permit. The second duty is to conserve both the Fund and the physical body that has been violated; to stop malingering, yes, but also and necessarily much more often, to stop the encroachment of the destructive forces—infections, for instance, which find their opportunity in the most minor injuries.

Let us also endeavor to keep in mind the fact that the Bureau can act quickly, fairly, and justly only as the claimant, the employer, and the physician co-operate and keep the Bureau advised; and the further fact that a report, whether on a printed form or otherwise, is the means of information upon which the Bureau must rely, in most cases, for the facts in the individual case.

Most of our misunderstandings, after an injury has been inflicted, are the result of delay or failure to furnish full information. That applies not only to the employee who delays or fails to inform his employer of an injury, but also to the physician who holds up his reports, does not make a complete examination, or fails to advise the Bureau of extraordinary or unusual circumstances or conditions that may have a bearing on length of disability or ultimate recovery.

It may as well be admitted that it is impossible for human beings to devise laws so perfect that they will work out absolute and impartial justice

\*Presented at the Thirty-seventh Annual Meeting of the North Dakota State Medical Association, at Bismarck, N. D., September 10 and 11, 1924.

in all cases or in and of themselves; and so long as human beings administer laws they are going to fall short of the attainment of that ideal condition expressed in the phrase "absolute and impartial justice."

That, however, does not relieve any administrative official of responsibility or of the obligation of continually striving to attain the ideal; but the extent to which the Bureau may be able to realize it in this state—so far as the particular part involved in this subject is concerned—rests very largely upon the extent to which the Bureau is able to obtain and retain the co-operation of the three parties before mentioned, the claimant, the employer, and the physician.

If that co-operation is, then, so very necessary, it is the business of the Bureau to get that co-operation; and, if it fails to get it, there must be something wrong in the methods that it employs to get it, or a lack of understanding on the part of those whose co-operation is sought.

I have the utmost confidence that the great majority of the men who make up your profession in this state are desirous of aiding the Bureau in the accomplishment of the two great duties that rest upon it, after an employee has been injured, and are ready and willing to put service above self to that end. That confidence is based upon my experience with the profession during the year that I have been on the Commission. There is plenty of evidence in our records to substantiate the statement that men who, by reason of their knowledge and experience, deserve and are able to command the highest returns, are rendering service that is not to be measured in dollars and cents.

There are quite a number, however, who do not yet fully appreciate the importance of making complete, detailed, and specific reports; there are some who consider them a necessary nuisance; and a few who are openly hostile.

Let me say to you in all frankness that there are many times when the report of the physician is the only basis of determining the Fund's liability, or the length and extent of disability. Proper diagnosis and prognosis are as important to the Bureau as they are to the patient. There might be facts in the record which, when connected with the facts in your report, would make necessary further investigation. If, therefore, your report is delayed by a week, two weeks, a month, or even six months, as the record discloses in one case, its value may be much lessened and even destroyed. On the other hand, the case may be one of extended disability, and the delay may hold

up "emergency" payments that are very much needed by the injured employee and those dependent upon him. This has happened in a number of instances.

Remembering that our first duty is to restore the injured person as nearly as possible to his original condition, prompt filing of a detailed "First Report" is of the utmost importance. Should special or unusual treatment be required ample opportunity is thus afforded for submission of the matter to the Bureau's medical advisors. Should the attending physician be so situated that the facilities at his disposal are inadequate to handle the particular case, the Bureau would thus be advised in time to make arrangements for getting the service the claimant's condition demands. For instance, few fracture cases ought to be treated without first taking an *x*-ray, but a poor *x*-ray is of as little value to the Bureau as it is to the attending physician. Your "First Report," promptly filed, would immediately notify the Bureau of the necessity of taking *x*-rays and of your facilities for taking such as would be of value.

The subject of restoring the injured to his former condition is bound to lead us occasionally into controversial territory, such, for instance, as we find in connection with the new "diathermy" treatments. Up to the present time our experience has not been such as to justify the charges made against the Fund, considering the results achieved, for this new method of treatment. As this is something which a layman has no business discussing, however, it is hoped that the matter may be fully and frankly gone into with Dr. W. H. Bodestab, either privately or through discussion on the floor of this convention.

It is my personal view that every legitimate case for compensation under the law should be dealt with to the full extent of the Bureau's authority, in order to accomplish the nearest approximation to complete restoration that is possible. That end can not be attained unless your wholehearted co-operation is obtained, both along the line of your technical work with the patient or claimant and the furnishing of complete and accurate information to the Bureau, promptly.

On the subject of conservation of labor power and of the Compensation Fund much may be said. It involves: 1st, a prompt report of every injury by the employee to his employer; 2d, prompt resort to a duly licensed physician for proper diagnosis and treatment; 3d, faithful carrying out of the instructions of the physician; and; 4th, malingering.



Your expert assistance is of no avail to us in getting employees to report their injuries. That is a problem of education for the Bureau, in which we have not been as successful as we should like. We are satisfied that a number of very large losses could have been avoided if the injured person had made prompt report to his employer so that a competent physician could have been called. In some of these cases the health of the employee was not conserved, in others his life was dissipated, and in none of them was the Fund protected; and all because a physician did not get the case in time.

It should require no argument to induce resort to a duly licensed and practicing physician as soon as reasonably possible after an alleged injury, but neither employees nor employers are, as yet, fully appreciative of that fact. The Bureau will have less difficulty in determining if a claimant has been injured or if he has been injured in the course of employment, when you are given full and fair opportunity to make your findings at the earliest moment after an alleged injury has been inflicted, and the Bureau can be advised. Examination comes before diagnosis, and diagnosis before prognosis. The claimant who delays in presenting himself for examination is aiding neither himself nor the Compensation Fund.

The attending physician in a compensation case is the man in charge, and not the claimant. Just a few days ago the Bureau received a case showing recurring infections. The infections recurred because the patient was not following instructions. Instead of shortening his disability period, he lengthened it, injuring both himself and the Compensation Fund. We are confident that the attending physician, once he is impressed with the importance of his relationship to the Bureau, will advise us in time if the case shows signs of getting beyond him, and the reasonable complaint of a claimant concerning the services of his physician, whether chosen by him or by the Bureau, will always receive full consideration. There can, therefore, be no justification for failure to recognize the knowledge, experience and authority of the attending physician, and his instructions should and must be followed so long as he remains the attending physician, in order that the physical well-being of the claimant and the solvency of the Fund may both be conserved. The Bureau desires that you promptly direct its attention to any failure to obey instructions, whether such failure be willful or merely from carelessness or a wrong mental attitude.

In passing to the fourth point, malingering, permit me to quote the first paragraph of the address of Dr. Arthur S. Hamilton, delivered at the 1923 meeting of the International Association of Industrial Accident Boards and Commissions. Dr. Hamilton then said:

Pure malingering, or the simulation of disease or injury without any basis whatever in fact, is relatively rare, but the tendency to exaggerate disease and especially the effect of injury, and to claim compensation for very trivial affections is very common. As Choinot has well said: "If nothing is more rare than pure malingering, nothing is more common than exaggeration." It is generally accepted also by those who deal with industrial injuries that exaggeration, at least of symptoms, has very greatly increased with the passage of compensation laws and the establishment of various insurance measures. This is further increased by the grouping of establishments into large corporations so that the employee no longer feels the personal relation with the employer that once, in much smaller organizations, existed.

It is only a short time ago that a very capable and conscientious specialist of the Northwest, mention of whose name would cause you to confirm his professional standing and reputation, wrote to the North Dakota Bureau regarding further hospitalization and operation in an aggravated case. His very frank and honest statement was to the effect that if the case could be adjusted on the basis of the then existing permanent disability, the claimant, if he desired, could then have the same operation performed, and, if he did so, it was his conviction that the claimant would be restored to full earning capacity much more quickly and at much less cost to the Fund. That was but another way of saying that the claimant was exaggerating his disability.

In concluding his address, Dr. Hamilton said this:

Under the best of conditions, however, mistakes will occasionally develop in the work of the most expert examiner, and, what is more frequent, the examiner may be left at the end with a feeling of uncertainty as to the truth or falsity of the claim. He sends in a long report without a positive conclusion, and the Commission asks him again, "But is the symptom complained of dependent on the injury?" and he may be unable to state positively. Perhaps the most fair test as to one's conclusions is to ask one's self: If there were no compensation possibilities to consider in this case, would the symptoms be as they are?

The test of Dr. Hamilton is, I believe, a fair test, and the value of your work will be enhanced by its application. Your reports should represent your conclusions, not those of the claimant nor those of the employer. Each of these also

files reports. The facts, as developed in the three reports, constitute the basis upon which the Bureau passes judgment. Should the situation presented by these facts demand further examination, one of the Commissioners makes a personal investigation. Then, should the sum total of facts disclosed make the case a doubtful one, it is the policy of the Bureau to resolve that doubt in favor of the claimant. This is well illustrated by a recent case of "sprain" in which the claimant was allowed compensation for a period nearly four times as long as the average disability for a "fracture" of the same parts. The frank statement of the physician in that case in no wise jeopardized the just claims of the injured. It

simply served to put the Bureau upon inquiry.

Gentlemen, in every compensation case with which you deal you are writing two records. Both are permanent records. One is always in evidence in the restored physical body of the injured; the other is just as indelibly written in the files of the Compensation Bureau. By writing the latter with the same conscientious skill and judgment that prompts you to your best efforts in writing the former you will furnish the best evidence of your whole-hearted co-operation in the work of administering the Compensation Law and you will certainly be a material aid to the Bureau in its effort to approach the ideal of impartial justice to all concerned.

## THE CAUSE AND TREATMENT OF ACUTE INTESTINAL OBSTRUCTION\*

BY EINER WESLEY JOHNSON, M.D.

BEMIDJI, MINNESOTA

Ileus is one of the most serious conditions with which we have to deal, since, if it is not relieved, death is inevitable; however, it would be a relatively benign condition were it always diagnosed immediately and prompt surgical intervention instituted.

*Cause.*—In a paper read in 1922, before the Section of Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, Charles H. Mayo classified acute intestinal obstruction into four groups: (1) apparent obstruction, really intestinal stasis, a reflex symptom occurring with slight abdominal distention, the pulse and temperature changes being such as are caused by the primary lesion, which is often renal; (2) obvious hernia; (3) acute obstruction from intra-abdominal lesion; and (4) postoperative obstruction.

We shall pass the first because it is not true obstruction. The second, obvious hernia, is becoming less frequent as more hernias are being repaired before strangulation occurs.

The third, acute mechanical obstruction within the abdomen, causes the greatest difficulties of diagnosis, although these difficulties have been overcome in a small measure by the use of the x-ray and the fluoroscope. The causes of this variety of obstruction are, volvulus, kinks, intussusception, various forms of internal hernia, gall-stones, constricting bands, results of peritonitis

or embryonic remains, enteroliths, spasmodic contraction, thrombosis or embolism, tuberculosis, and cancer.

Volvulus, the twist of an unusually long mesentery, occurs most often in the sigmoid. Intussusception, with its sudden onset, cramps, and blood and mucus in the stools may often be located by palpable tumor, especially in children under one year of age in whom it is the most common. In adults intussusception is often started by a tumor of the small intestine. An inverted Meckel's diverticulum, or a stiff infected area around the base of an appendix may act in the same manner.

Various forms of internal hernia, through congenital unnatural mesenteric openings or through the diaphragm, usually cause degrees of partial rather than complete obstruction, which, however, may suddenly occur.

Gall-stones cause obstruction by ulcerating the gall-bladder and duodenal walls and, after passing through the upper intestine, cause a block in the upper ileum.

Bands, embryonic, are rare, and those from peritonitis are getting less frequent as the technic of operators is improving.

Enteroliths sometimes become large enough to cause obstruction.

Spasmodic contraction of the ileum sometimes occurs in acute appendicitis, pelvic infections, and infections of the gall-bladder, but usually subsides if gastric lavage is employed and neither

\*Presented at the sixteenth annual meeting of Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association, Minneapolis, Minnesota, December 11 and 12, 1923.



food nor cathartics given by mouth, while the patient is supported by the use of rectal feeding and saline solution by rectum and subcutaneously.

Gross tuberculosis of the small or large bowels occasionally causes complete obstruction following a series of chronic incomplete obstructions.

Malignancy occurs mostly in the large bowel. The obstruction is rarely due to the pressure of tumor, and then it is easily palpable. Acute obstruction, as in tuberculosis, is usually followed by recurrent attacks of incomplete obstruction with blood and mucus in the stools.

The fourth, postoperative obstruction, is becoming less and less frequent. The explanation of these beneficent result lies chiefly in two factors: an earlier diagnosis of acute abdominal lesions and a more refined surgical technic in the management of abdominal operations.

*Treatment.*—Many theories have been advanced to explain the cause of death. Among the factors emphasized in these theories are proteose intoxication, bacterial poisons, injury to the intestinal mucosa, and dehydration. The mortality is in direct proportion to the time elapsing before operation, and the rapidity and the lethal outcome vary with the amount of bowel strangulated. It is well known that a complete strangulation of the small bowel causes marked shock and extreme thirst and that the fatal conditions reside in the distended gut. It follows that the two important procedures to be carried out are the immediate relief of the obstruction and the administration of a sufficient quantity of fluids. A large percentage of these patients are in very poor condition at the time procedures are undertaken for their relief. Before any operative work, gastric lavage should be instituted until the distended stomach and bowels are fairly empty. This facilitates the ease of operation and removes much of the toxic material. Keep the patient warm. Give fluids freely by mouth, rectum, and subcutaneously, and transfuse if necessary. Operate as soon as the diagnosis can be made. Our custom is to relieve the obstruction if possible, wash out the distended bowel, and make a fistula. Many times these patients are too ill to allow us to do anything but drain the distended gut, doing whatever necessary later. This can be done easily with local anesthesia.

In finishing what I have to say on treatment I can do no better than repeat what Crile said in a recent discussion on this subject:

1. Intestinal obstruction demands immediate action, and yet the most careful and gentle action compatible with relief of the obstruction.

2. It is extremely important in these cases to

build up the water equilibrium of the patient who has been vomiting and has not absorbed water. Large amounts of water, even 7,000 c.c., subcutaneously, are indicated in the first twenty-four hours.

3. In order that the patient may have the proper oxidation within the tissues it is important, unless the circulation is good, to give a blood transfusion and to give it in advance of the indication of failure of the patient's organism. If necessary, morphine should be prescribed.

I desire to report a case which is, however, not exactly an acute but, I think, rather an unusual form of obstruction:

On January 17, 1920, a boy, aged 13 years, was brought to our office suffering from vomiting. We obtained the following history:

Present illness: December 15, 1919, he started to vomit. Vomited five days. Seemingly he could not retain anything. Had some abdominal pain, but not a great deal. Vomited on Christmas eve and again the following day. Then went until December 30, when he again vomited. Has been vomiting continuously since. Has some pain, more so on vomiting. He has lost a great deal of weight, but his parents do not know how much. For the last day has been slightly delirious at times.

Past illness: Has had measles and chicken-pox, recovering completely in both instances. Appendix removed five years ago. During the first year of his life he vomited most of the time. He was born in the "U" Hospital and was under the care of a pediatrician who at one time called a surgeon in consultation with the intention of having him operated on for pyloric obstruction; but, for some reason unknown to the parents, this was not done. He did fairly well after the first year until he was three and one-half years of age; at that time he had an attack of vomiting for five days, bowels very constipated, lived on broth and liquids three months. From this time he had intermittent attacks of vomiting and constipation up until five years ago, when he had his appendix removed. Since then has been quite robust and healthy.

Family history, negative.

Examination shows a very emaciated rather tall boy, too weak to sit up. Skin very dry; pulse, 120; temperature 98°. Blood pressure, 80-65. Heart, lungs, and nervous system, negative. Abdomen was slightly distended in upper part; visible peristalsis from left to right. Large stomach can be palpated through the thin abdominal wall. Lower abdomen apparently empty. Very little tenderness. Blood Wassermann negative. Leukocytes, 20,000. Urine contains albumin and granular and hyaline casts.

The x-ray shows tremendously dilated stomach, cap, and duodenum; sharp constriction beyond duodenum. Film taken one hour after meal does not show any change. The three hour film shows that some barium got by the obstruction.

This patient was operated on four hours after we first saw him. We washed out his stomach, gave him a clyster of water and liquid food below the obstruction by means of a large-caliber catheter. This was done under local anesthesia with no apparent harm, but he died ten hours later, probably from

starvation. After opening the abdomen, we thought we could make out a tense band of tissue running obliquely across the abdomen from the right inguinal region towards the epigastrium. We were unable to obtain consent to an autopsy.

In conclusion, I repeat two important points in treatment: Operate early, and do no more than is absolutely necessary. It is surprising to see how many very ill patients will apparently completely recover with the formation of a fistula and irrigation.

#### DISCUSSION

DR. ARNOLD L. HAMEL (Minneapolis, Minn.): In reviewing the literature in regard to congenital conditions of the intestinal tract, I find that the superior mesentery is mentioned as a prominent cause of this trouble, and as it passes over the duodenum, may cause pressure and thus bring about apparent obstruction. Also the mesentery of ascending colon may be instrumental in producing ptosis of the large bowel, causing some degree of obstruction in the region of the duodenum where it crosses to its insertion.

It occurs to me that the band of tissue which the essayist thought he saw extending across the abdomen might have been something of that kind. It does not seem that a real stenosis of the upper intestinal tract would permit a child to live for thirteen years. The x-ray examination showed that there was some incomplete obstruction below the duodenum. All these factors taken together lead me to believe that there may have been some congenital deformity in the region of the intestines. However, some internists might think that cyclic vomiting was the cause of the symptoms. This, surely, would fit into the history of this lad. Dr. Johnson states that he probably died of starvation, and in that case the condition might have been acidosis with cyclic vomiting, thus producing a vicious circle which would cause the child to starve to death, irrespective of any real surgical condition.

DR. GEORGE G. EITEL (Minneapolis, Minn.): During the past year we have had quite a number of cases of acute obstruction of the intestines, and all the patients that were operated on or re-operated on early lived; those who refused operation and received other treatment, waiting for a favorable outcome without exploration, died.

We all know that re-opening of the abdomen is not well borne by the average patient, especially if done under general anesthesia. It should be done under local anesthesia with novocain.

DR. THEODOR BRATRUD (Warren, Minn.): There is one thing I would call attention to, and that is the necessity for emptying the contents of the bowel above the point of obstruction when the condition has existed for a considerable length of time. When I first saw these cases in my interne days the doctors were watching for the pulse to go up. We learned that these cases had some degree of obstruction even though they did have a slow pulse, and as soon as operated on and the constriction was relieved the contents of the bowel passed into the healthy bowel, following which the patient soon died.

Several years ago Dr. Clairmont, of the Eisels-

berg Clinic, showed that by injecting the contents of obstructed intestinal loops into a dog he could induce paralysis of the healthy intestinal tract, in many cases causing death of the animal. Since we have done enterostomy above the point of obstruction we are not losing as many of these patients with obstruction as formerly. A No. 10 catheter can be placed in the bowel and left there for several days; in fact you can feed the patient fluids through the catheter. When the catheter comes away there is no further trouble from the sinus, as it closes spontaneously if enterostomy is made after Witzel's method.

DR. JOHN V. R. LYMAN (Eau Claire, Wis.): In regard to the diagnosis of intestinal obstruction: I might say a word on one point that was brought to my knowledge by Dr. Ochsner several years ago in connection with a case in which, ten days after operation, I had asked Dr. Ochsner to see the patient in consultation. He stated that he had a similar case in his hospital and suggested that the patient be sent to him in Chicago, stating that if lavage was given every four hours he could safely be transported even across the continent. So we instituted lavage, and upon arrival at the Augustana Hospital we again performed lavage, with the result that there was very little fluid in the stomach after four hours. Dr. Ochsner then examined the case and said, "We will wait," continuing: "There never was a case of acute complete obstruction of the bowel where there would not be continuous regurgitation of fluid into the stomach, which lavage would show." This point has helped me in subsequent cases. He gave one ounce of liquid peptonoid and normal saline solution every four hours. The patient was kept on that for twenty-eight days, at the end of which time he began feeding by mouth, and the patient completely recovered. We have other means that might help out, such as glucose and peptonoid, etc., but I do think the peptonoid helps in cases of this kind.

DR. JOHN M. DODD (Ashland, Wis.): Fifteen years ago I resected the rectum in a case which I diagnosed as cancer, and my prognosis was that the man would probably live a year. A few days ago he showed up again, stating that his bowels had not moved for two weeks. On examination I found that there was rather a tight constriction of the anal orifice, but apparently no recurrence of the growth at that point. I endeavored to get a colon douche instrument up into the bowel to locate the constriction, because he had, of course, an obstruction of the lower bowel. Up to this time he had not vomited, but his abdomen was considerably distended especially over the colon. A long instrument was passed up into the bowel for at least fourteen inches, and still no fecal material was reached. He was a man over 80, and we were not in any hurry to operate. We made a mistake in waiting for a couple of days, when, on opening the abdomen, we found an annular constriction in the upper sigmoid, a doughnut-shaped mass occluding the lumen of the bowel. I resected this piece of bowel and closed the ends and made a side-to-side anastomosis. The patient went along for about five days and then died.

It is a problem to know just what to do and how far to go after we get started. I am satisfied that in this case I should have done a colostomy. The man would then have gone along and lived consid-



erably longer, and, while he would have experienced some discomfort, yet his life would have been prolonged. It is a question whether to resect and to bring the ends of the bowel out through the abdominal wall or to do an anastomosis, or to bring the tumor mass through the abdominal wall and wait for it to become adherent and then later remove the growth and restore the continuity of the bowel. This case was quite instructive. I have had considerable experience with cases of a similar character, and we are perhaps inclined to go too far when we get cases of obstruction. If we would do the simpler thing, we would save our patients instead of sacrificing them by too extensive operation.

DR. F. GREGORY CONNELL (Oshkosh, Wis.): I heartily agree with what Dr. Dodd has said about saving the patient's life. Acute intestinal obstruction is a matter of life and death, and the plain indication is to do an enterostomy if it can be done soon enough.

I want to call attention to the matter of diagnosis: Do not wait for vomiting. I find in consultation that obstructive cases are often allowed to go on because vomiting has not occurred. The use of the stomach-tube will save many hours and often lives. In postoperative cases the use of the *x*-ray is of the greatest value in diagnosing obstruction. With the *x*-ray, even without a barium meal, the obstruction is plainly indicated in some cases.

## THE EDUCATIONAL OR LEGAL WAY TO ESTABLISH SOCIAL HYGIENE\*

BY CHARLES E. KASSOWITZ, M.D.

The Bartron Clinic

WATERTOWN, SOUTH DAKOTA

It is an old principal question whether the legislation should have the task to anticipate an ideal standard of social conditions in its regulations and orders, while the present habits and morals of the average society are still on a much lower level; or whether the laws should just be consequent to the educational and moral standard of the people. Modern history shows examples for both ways of social progress. There is no question that it is a more democratic and a far more reliable way to express in legislative acts just the real social condition, not better and not worse than it is. We surely should not have so many offences against the laws, if the pretensions of legislation on our self-command and judgment were more moderate. But, on the other side, we see the progress of the sciences and single high-minded persons who are doing hard pioneer work in discovering new ways of common welfare, and who have not the intention to wait with the establishment of the products of their efforts until the last subject had admitted the social improvement and had submitted to its new regulations.

I want to apply this general reflection to the question of introducing the modern methods of preventive medicine in our society, especially the methods of serological protection against the contagious diseases. It is commonly known that epidemics were wiped out during the World War in an admirable manner, protecting the armies and the civilian population of all the nations,

while the former wars had even more losses from epidemics than from war casualties. It is generally admitted that this work was due to compulsorily applying hygienic measures. There was, as well, the avoiding of contamination with infectious patients and carriers of infection, and certain protective measures, in the proper sense, which enabled the exposed persons to resist infections. In the European states a great part of the whole population was under arms and the rest under martial law, so that the accomplishment of even radical hygienic measures could be pushed very far. We know, for example, that whole villages were burned down to destroy the lice, the carriers of typhus infection. On the other side, soldiers, as well as civilians of endangered districts, were compelled to be vaccinated against smallpox, typhoid and paratyphoid fever, and cholera, with the result, that these fearful diseases lost more or less of their importance.

After the war most governments abandoned the radical compulsory measures of vaccination, as they thought that only exceptional times permit exceptional means. There is just one government, so far as I know, which has compelled obligatory vaccination against smallpox, and that is Germany. All the other civilized nations contented themselves to leave the decision on installing vaccination to the individual communities, or they limited it to schools and colleges. The result of this undecided attitude was the reappearance of some epidemics, especially of smallpox at different places with no systematic

\*Presented before the South Dakota State Conference of Social Workers at Redfield, October 9, and 10, 1924.

counter-measures to fight them. The supreme authorities had lost the definite control in the hygienic warfare.

There are now two ways left for corporations and individuals who recognize the duty of establishing the modern and approved principles of public health work. The first is to propagate in the broadest circles the value of protecting the public against the social danger of contagions by the way of immunization. There is no question about it that there are many prejudices against prophylactic interferences of physicians, as the fear of being used as an experimental object for not quite approved scientific aims is rather often to be found in half educated people. Therefore it should be a high task to bring our fellow-citizens up to the knowledge of the incontestable efficiency of prevention against smallpox, typhoid and paratyphoid fever, cholera, and recently against diphtheria by means of vaccination. It is easy to realize that the most excellent serological technic could not help to fight an outbreak of a dangerous epidemic, if the population in question would not be willing to collaborate with the physicians. I do not hesitate to claim that the establishment of a systematic teaching on

modern hygienic principles, including the measures of vaccination and antitoxic prophylaxis and their statistical results, should take an important place in the public education of every child. I am sure that then the statistics of morbidity would show a uniform decline all over the United States, though now some communities can boast of their declining death rate in contagious diseases, while other cities and counties are punished by the same epidemics.

There should be another way to establish a very complete control over the epidemics we are able to fight. It would be the way of legislation, as I have already indicated. I called it the less democratic way, and I am aware of the objection that a compulsory vaccination, as it is practiced in Germany, would not be accepted by a nation with the self-determination of every individual. It may be allowed to me to be of a different opinion on this point, for I have confidence in the judgment of a democratic legislature that it will decree at once a strict hygienic law, which may be at first as unpopular, but also as beneficial, as another bill, which has practically wiped out another social plague in the United States of America.

## NOSE BLEED

By J. E. ENGSTAD, M.D.

GRAND FORKS, NORTH DAKOTA

One of the most common ailments afflicting humanity, especially at the age of adolescence, is nose bleed. The loss of blood is often of such severity that it causes syncope, but in the majority of cases the bleeding is from a few drops to half an ounce or more, though often of daily occurrence, and this constant loss of blood in the course of time, will undermine the general health, and we have, in severe cases, a marked variance from the normal blood picture.

Nose bleed is invariably due to a tear or an ulceration, often very small, of all the three coats of the artery of the septum. The artery of the septum is a branch of the superior coronary, and the hemorrhage from the branches of this vessel is readily controlled by compression of the artery of the septum, either by direct backward pressure against the upper lip or by pressure from within outward, as when a firm pledget of cotton, paper, or other substance is pushed well up under the lip so as to put its tissues upon the stretch and occlude the lumen of the artery. This is a common procedure practised by the laity. Another simple method is that of holding the cartilaginous

end of the nose between the thumb and finger.

In severe cases inject five minims of a 5 per cent solution of urea hydrochloride at the root of the septum at the entrance of the nasal cavity where the artery strikes the septum running upwards and inwards at an angle of 45 degrees. In desperate cases a sharp-pointed hemostat may be used.

The curative measure is extremely simple. Anesthetize the mucous membrane of the septum by application of a few drops of 10 per cent cocaine and then sever the artery at its lowest portion recognizable with the actual electric cautery. The patient will then have no further hemorrhage, even if the individual has the pernicious habit of putting his unprotected fingers in his nose either from a habit or with the object of removing incrustations or other foreign material. Individuals who have undergone mutilating operations in the nose—for example, the removal of turbinated bones—ought to keep the nasal cavity oiled with some pleasant ointment due to the destruction of the secreting surface of the nasal cavity leaving the caliber of the organ excessively dry.





W. A. JONES, M.D., *Editor*

ASSOCIATE EDITORS

R. D. ALWAY, M.D. - - - Aberdeen, S. D.

A. J. McCANNEL, M.D. - - - Minot, N. D.

W. L. KLEIN, *Publisher*

Subscription - - - - - \$2.00 a Year

PUBLICATION OFFICE

639-840 Lumber Exchange - - - Minneapolis, Minn.

DECEMBER 15, 1924

## HEALTH ACTIVITIES IN THE UNITED STATES

There seems to be an unusual number of epidemics all over the United States, and they evidently embrace almost everything known in the field of bacteriology and many things that are not known. With this comes the usual feeling of indifference on the part of so many people as regards their safety. Fortunately, the smallpox epidemic has been well taken care of by the newspapers. They have explained the situation and have recorded the number of cases and the number of deaths that come therefrom and have warned the people and urged them to be vaccinated against smallpox, and the response in Minnesota at least has been very gratifying. There are still people who do not believe in vaccination, in spite of the fact that Dr. Hadwen, an Englishman who came over to this country to tour the United States and to lecture against vaccination and vivisection, has gone back to England and been arrested for failure to take care of a case of diphtheria, which he did not diagnose when any ordinary physician would have recognized the disease at his first visit. Dr. Hadwen has been indicted in England for lack of ordinary professional skill and for failure to attempt to save life when he might have done so.

The child Dr. Hadwen was called to see died within a very short time from diphtheria and pneumonia. The English people will not stand for any such incompetency. The probabilities

are that he will get a term in the penitentiary for his carelessness and his ignorance, together with his determination not to believe in scientific medicine. It is quite likely, too, that the faith healers believe much the same, or, rather, have no knowledge of the cause of disease. The Rev. Dr. Robert B. H. Bell, a Denver preacher, thinks "that the sanest method is to stir up in sick people's minds such faith that they will be cured of their sickness," and he evidently does not believe in vaccination, antitoxin or anything of the sort. The newspaper record shows that many of his followers, who crowd his church, believed for the moment that they were well. Of course the same thing has happened time and again. The overzealous preacher believes he has power to sway the minds of sick people and make them recover from their illness. After awhile, of course, he finds that many of his patients are not very well. Their old troubles are slipping back. Their rheumatism has returned; their asthma, neuritis, and other disorders are again in the foreground. People who have been treated are found to be as deaf as ever, and some of the quasireligious hysterics die from some real illness,—and then the preacher slips out of town on the first train. It seems rather curious that an enlightened nation will listen to these quacks in the face of all kinds of diseases which are all over the country.

One of the chief obstacles in the prevention of disease is the lack of funds, both at Washington and in the states, although we cannot complain as much of that as we have in previous years. Everyone is doing his or her best to eliminate smallpox, and the number of deaths that have occurred from hemorrhagic smallpox ought to be a very strong lesson to the unvaccinated. Minneapolis and other cities are conducting free clinics for vaccination, and yet people scoff at it, and many of the cults ridicule it as a dangerous procedure, which they call the introduction of a poison into the system to prevent people from having smallpox. Little do they know of what they are saying.

## THE MINNESOTA STATE MEDICAL ASSOCIATION

On account of the conflict of medical society meetings in 1925, a meeting was called by President Burnap to determine the best time for the Minnesota State Medical Association to meet. This discussion was participated in by the secretaries of the Northern and Southern Minnesota Medical Associations, Ramsey and Hennepin

County Medical Societies, the president, vice-president, secretary, and councillors of the State Association, some members of the faculty of the Medical School, and the president of clinics of the Interstate Assembly, as well as a representative from the Minneapolis Clinical Section.

The whole situation was discussed, and it was finally determined, as the meeting was to be in Minneapolis, that the State Association should hold its meeting the last week in April, 1925, to conform with the time which is usually determined for Minneapolis Clinic Week. It will be necessary, therefore, for medical men to show their activity and prepare for this meeting, as it means the collection of clinical material, which is to be the predominant feature in the State Association meeting, and the preparation of a program of papers which are to be read in abstract. This gives the Association an opportunity to invite more men to read abstracts of papers, and will incidentally give the clinicians an opportunity to cover the clinical field of medicine and surgery as far as possible.

The program committee will be announced in January by Dr. Burnap. If this work is taken over by the committee having charge of Minneapolis Clinic Week it will mean some very active work, to begin at once. Minneapolis must be fully prepared to entertain the State Association, as the dates have been arranged so as not to interfere with any of the societies in other parts of Minnesota nor any associations in the East. The Congress of Physicians and Surgeons, which is really a meeting of the various American Medical Association organizations, will occur in Washington in the week beginning the fourth of May, so that this will not in any way interfere with the State meeting and will give the Minnesota men ample time to get to the meeting of the American Congress, and also will be in advance of the meeting of the American Medical Association at Atlantic City this coming year.

## BOOK NOTICES

**TWO LECTURES ON GASTRIC AND DUODENAL ULCER.** A Record of Ten Years' Experience. By Sir Berkeley Moynihan. Boards. Price 2 shillings, 9 pence. Pp. 48, with illustrations. Bristol: John Wright & Sons Ltd., 1923.

In these two lectures Sir Berkeley Moynihan reviews his last ten years' experience with some of the main problems of gastric and duodenal ulcer. His broad fairmindedness, the lucid clearness of his

thought, and his nicety of expression make this small volume well worth careful reading. The internists will be interested in his discussion of the diagnosis, its limitations and its pitfalls. They will be interested in his conception of the cancer-ulcer relation, in his discussion of the medical treatment of ulcers and in the cause of pain relief under treatment. The surgeons will be interested, not only in all of these, but also in his attitude toward the surgical procedures and in the changes in his point of view with the increase in his experience.

—ARTHUR T. MANN, M.D.

**PRACTICAL CHEMICAL ANALYSIS OF BLOOD.** By Victor Caryl Myers, M. A., Ph.D., Professor and Director of the Department of Biochemistry, New York Post-Graduate Hospital. Second revised edition. Pp. 232; 33 illustrations. St. Louis: C. V. Mosby Company, 1924.

The original edition of this valuable reference book was merely a collection in book form of a series of the articles entitled the "Chemical Changes in the Blood in Disease," which appeared during the year 1920 in *The Journal of Laboratory and Clinical Medicine*. The present edition is a substantial enlargement and revision of the first issue and contains not only the original articles in revised form but also the Folin and Wu system in blood analysis which is simply a more economical and simplified system of blood chemistry and several other newer methods of analysis, such as Benedict's simplified method for uric acid, method of determination of such constituents of the blood as hemoglobin, inorganic phosphorus, acetone bodies, etc.

The author not only presents various methods of chemical analysis in detail but discusses quite adequately the pathologic physiology of each metabolite and clinical application and interpretation of findings. This makes the reading quite interesting to the medical man, as well as to the physiological chemist and to the laboratory director.

References given at the end of each chapter are a valuable guide in the further study on the subject.

The author, while not a physician, is an outstanding authority in the field of medical chemistry whose contributions to the technical and medical literature is a lasting monument to the advance of modern medicine.

—KANO IKEDA, M.D.

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 4, Number 3 (Chicago Number, June, 1924), 245 pages with 108 illustrations. Per clinic year (February, 1924, to December, 1924.) Paper, \$12.00. Cloth \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Dr. Arthur Dean Bevan presented a case of cyst of the kidney in which case it was difficult to determine whether the condition was a cyst of the tail of the pancreas or cyst of the left kidney. The definite diagnosis was made at operation, but Dr. Bevan emphasized the importance of the simple and too often neglected procedure of distending the bowel with air in order to determine whether the mass is retroperitoneal or intraperitoneal. He then recited a very interesting series of cases of retroperitoneal tumors in which this test was used and by which their locations were determined. The series included cases of hypernephroma, hydronephrosis, cysts of



the kidney, pancreatic cysts, and a retroperitoneal sarcoma. He emphasized strongly the point that all of the diagnoses could not have been arrived at so definitely if the above described test of bowel distention by air had not been used.

Dr. Albert J. Ochsner presented three cases of advanced malignant growths which were removed by the actual cautery after the Percy method. He uses small-sized soldering-irons to remove the tumors and advises that the iron be kept in contact with the tissues long enough to destroy healthy tissue for a short distance beyond the growth. He advises that radium be applied preceding the excision by the hot iron. He states that "the cautery should be used in many cases that are apparently hopelessly advanced, because this group contains a considerable number which will remain permanently well after removal by that method."

Dr. Daniel N. Eisendrath presented two cases illustrative of congenital stricture of the ureter. In an interesting discussion of congenital affections of the ureter in general he dealt with strictures, twists, valves, diverticula, and dilatations without obstruction in ureter, bladder, and urethra.

Dr. Kellogg Speed in a discussion, well illustrated by x-ray pictures, dealt with traumatic lesions of the head of the radius.

Drs. Alfred A. Strauss, Joseph Friedmand, and Leon Bloch presented three cases of ulcerative colitis in which colectomy preceded by ileostomy was done. They discourage the use of appendectomy as a preceding step because the irrigation through such a small opening is not sufficient. After the patient's condition is improved by blood transfusions and irrigations through the ileostomy opening, the colectomy is done, leaving the ileum opening on the abdomen as the artificial anus.

In a clinic at Mercy Hospital, Dr. Charles Louis Mix gave a very interesting and understandable review of the physiology and pathology of the thyroid. This was followed by an equally interesting discussion of the surgical procedures required in the various types of goitre.

Dr. David C. Straus presented two cases of so-called Brodie's abscess in one of which was found pure staphylococcus pyogenes albus and in the other pure streptococcus hemolyticus. A very interesting account of Sir Benjamin Brodie's first case in 1824 is given. It is remarkable how accurately Dr. Brodie described the symptoms, pathology, and progress of this condition, and how exactly his treatment is followed out to-day in these bone abscesses.

In the Clinic of Dr. Edwin M. Miller three cases of lesions of the breast associated with a discharging nipple were presented. He states that a frank bloody discharge is almost diagnostic of a benign papilloma, a mucoid discharge characteristic of a chronic cystic mastitis, and a serous or serohemorrhagic discharge very indicative of malignancy. Case No. 1 was a woman 29 years of age complaining of a watery discharge from one nipple. On examination a diagnosis of papilloma was made, and operation was advised. Case No. 2, was also a papilloma under the nipple, but it caused a discharge of a bloody serum. Case 3, complained of a very dark discharge of a bloody nature, and it proved to be adenocarcinoma.

Drs. Harold E. Jones and Philip Lewin described

the Charcot joint and gave a very comprehensive and exhaustive differential diagnosis between that condition, tuberculous joint, synovitis, chronic arthritis, malignancy, septic infection, fracture, and dislocation. They emphasized the etiology stating it to be due usually to syphilis, but was found in other neuropathic conditions in which there was interference with the trophic impulses, as in syringomyelia, compression or destruction of the spinal cord, severance of nerves, pernicious anemia, and peripheral neuritis.

Dr. Ralph Buene Bettman, of the Michael Reese Hospital, gave a clinic on chronic empyema during which he described his own radical operation for its cure. He emphasized the importance of leaving a drainage tube in acute cases until all of the cavity is obliterated. He uses 12 per cent sodium bromide solution to fill the cavity before taking the x-ray pictures. This is non-irritating and non-toxic and can be washed out completely after the pictures are taken. In short, this operation consists of the preserving of a skin flap, exposing the entire cavity by rib resection under local or general anesthesia, excision of the thickened parietal pleura, decortication of the compressed lung where possible, dealing with the fistulae by cautery or allowing them to close spontaneously, turning in the skin flap and allowing the wide open defect to heal by cicatrization.

—RICHARD R. CRANMER, M.D.

MANUAL OF THE DISEASE OF THE EYE. By Charles H. May, M.D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Price, \$4.00. New York: William Wood and Company, 1924.

This is the eleventh edition of Dr. Chas. H. May's "Diseases of the Eye," the first edition being published in 1900. The book is intended primarily for the student and general practitioner. In this edition the chapter on Uveitis has been rewritten and brought up to date, giving a later classification of the different varieties. The treatment is also gone into more fully. The chapter on disturbances of motility has also been rewritten, giving a simpler but better description of muscular imbalance. The illustrations have been improved and several added. On the whole, the book is the best edition of this popular text-book which Dr. May has published.

—H. L. Goss, M.D.

THE BIOLOGY OF THE INTERNAL SECRETIONS: The Endocrine factor in development, in subnormalities, in neoplasms and malignancy, in nervous and mental diseases and in heredity. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases in Jefferson Medical College, Philadelphia, 12 mo. of 241 pages. Philadelphia and London: W. B. Saunders Company, 1924. Price, \$2.75 net.

This stimulating book by Dercum should be read by all interested in the internal secretions.

After taking up in the introduction discussion of

the ameba, whose ferments he likens unto the internal secretions for that form of life, the author expands on the meaning of the terms *ferment*, *enzyme*, and *catalyst*.

A review of the experiments in growth disturbances made by nature in that greatest of all laboratories, the clinic, is given. Stigmata of arrest are considered to signify that the chemical and physical processes inherent in the germ plasma of the parents lacked the necessary intensiveness to lead to a full and normal maturity. The lymphatic diathesis, in its simplest expression, frequently met with in children may be due to lowering of the intensiveness of the processes of the organism. The possibility of a toxic hormone, vagotonic in nature, from the thymus is suggested. The thymus is discussed as to relation to other glands; that it is antagonistic in action to the adrenal glands; that thyroid enlargement has its origin indirectly in the lowered biological level of thymic persistence and is itself expressive of impaired development. The thyroid and the chromaffin system are thought to reinforce each other. The author considers that in hyperthyroidism the enlargement of the anterior lobe of the pituitary is a compensation as in the instance of the compensatory enlargement of the thyroid directed against the thymus. This compensation may express itself merely as an increase in stature or if over compensation results, in true acromegaly.

The function of the pancreas is depressed in hyperpituitarism and hyperthyroidism so as to permit glycosuria.

The relationship of adrenal cortex to atypical sexual development is the subject of another chapter. Sexual hypoplasia accompanies lymphatic hyperplasia and thymic persistence, and when met with it is always accompanied by regressive changes in other glands. Failure in sex development occurs when lessened in vigor and resistance by lowering normal level. It is suggested that the pineal gland, when lessened in vigor and resistance by lowering of the intensiveness of the body processes, may by its involution before puberty cause premature sexual development.

The author divides the thyroid and pituitary with the chromaffin system in one synergic group, all of which promote the release of energy. On the other hand, the pancreas and all the glands of the alimentary tract and its adnexa are under automatic influence, to which are added the thymus and parathyroid; all these are opposed to the catabolism and are rather the conservators of energy.

The balancing of these two groups is made the subject of interesting hypotheses concerning the mental deteriorations in which first with depression and hypochondriasis the automatic group is involved. In the expansive stage the reverse obtains with disturbance of the sympathetic group possibly due to some toxin.

Maniac depressive disease is explained on the basis of a cyclic variation in the function of the two groups.

Malignancy, it is suggested, may be an expression of imbalance of the two groups of endocrine glands before described with resultant attempted compensation and unruly over compensation.

—C. A. MCKINLAY, M.D.

## NEWS ITEMS

Dr. J. B. Gumper has moved from Becker to Evansville.

Dr. F. B. McGarvey has moved from Cavour, S. D., to Huron, S. D.

Dr. Charles H. Cowgill, of Iroquois, S. D., has moved to Huntington Park, Calif.

A Minnesota physician has been sentenced to spend a year in a Federal prison for selling drugs to addicts.

Fifty cities made application for the new hospital to be built by the Federal Bureau of the United States Veterans at some point in the Tenth District.

The secretaries of all the State Medical Associations met in Chicago last month for their usual annual meeting. All Northwestern states were represented.

Drs. J. A. Myers and C. A. McKinlay, of Minneapolis, presented papers last month at the annual meeting of the Harding County Medical Society at Eldora, Iowa.

A local epidemic of hiccough hit Rochester, Minn., last month, and Dr. Rosenow, of the Mayo Foundation, at once began a search for the germ of the disease.

The new nurses' home of St. Luke's Hospital, Duluth, will be occupied this week. It is a handsome five-story modern building and will accommodate eighty-five nurses.

Dr. Samuel Z. Kerlan has moved from McGregor to Aitkin. He had planned to make this move before the death of Dr. Graves, of Aitkin, which occurred last month.

The annual meeting of St. Paul Clinic Week for 1925 will not be held, and Minneapolis Clinic Week and the State Medical Association may meet in Minneapolis at the same time.

Dr. J. S. Pritchard, of the Battle Creek Sanatorium, spoke before the Hennepin County Medical Society on November 26. His subject was the "Differential Diagnosis of Chest Conditions."

The annual meeting of the Central Minnesota District Medical Association was held at Willmar last week, and was followed on the same date by a meeting of the Kandiyohi-Swift County Society.



Dr. W. J. Dailey has sold his practice at Blooming Prairie to Dr. J. Nelson Ewbank, of St. Paul. Dr. Dailey will spend some time in post-graduate work and then go to California to resume practice.

Dr. Fred G. Carter has been appointed superintendent of the Ancker Hospital of St. Paul to succeed Dr. J. L. McElroy, who resigned to accept the superintendency of St. Mark's Hospital of New York City.

At the December meeting of the Huron (S. D.) Medical Society, papers were presented by Dr. M. E. Cogswell, of Wolsey, on "Helpful Hints;" by Dr. W. H. Sexton, of Huron, on "Diabetes;" and by Dr. H. L. Saylor, of Huron, on "Physiotherapy."

Drs. George E. Eitel and Arthur L. Herman, recent graduates of the University of Minnesota, have become members of the staff of the Eitel Hospital of Minneapolis. Dr. George E. Eitel is a nephew of Dr. George G. Eitel, the founder and the chief surgeon of the Eitel Hospital.

Dr. R. F. Bellaire, of Sioux City, Iowa, Secretary of the Sioux Valley Medical Association, has returned from the East where he has been spending a couple of months in postgraduate work. He is now busy with the program of the next meeting of the Sioux Valley Association.

Death and resignation have caused several changes in the officers of the Minnesota State Medical Association. Dr. E. K. Geer, of St. Paul, succeeds Dr. C. B. Drake as secretary; Dr. Earle R. Hare, of Minneapolis, succeeds the late Dr. F. L. Beckley as treasurer; Dr. E. A. Myerding, of St. Paul, becomes executive secretary succeeding Mr. J. R. Bruce, of St. Paul.

At the annual meeting of the Soo Surgical Association, held in Chicago, the following officers were elected: President, Dr. A. A. Law, Minneapolis; vice-president, Dr. David B. Meiklejohn, Fond du Lac, Wis.; secretary-treasurer, Dr. John H. Rishmiller, Minneapolis. The place of meeting in 1925 was left to the officers. Twenty-four papers were presented at the Chicago meeting, mainly by prominent practitioners of Minnesota, Wisconsin, and Chicago.

The Sioux Valley Medical Association holds its annual meeting at Sioux City, Iowa, on January 20. The following outside men will present papers or clinics at the meetings: Drs. J. A. Abt, Dean Lewis, and Joseph Miller, of Chicago;

Dr. Reginald Fitz, of Harvard; Dr. H. E. Robertson, of the Mayo Clinic, and Dr. W. A. Jones, of Minneapolis, editor of *THE JOURNAL-LANCET*. Drs. Lewis and Jones will also be the speakers at the banquet. The program of the meeting will appear in our next issue.

#### THE CASS COUNTY (N. D.) MEDICAL SOCIETY

There were two meetings of the Cass County Medical Society last month which will be of interest to readers of *THE JOURNAL-LANCET*. On November 12 the Society had a dinner at the Fargo Commercial Club after which the following program was rendered: "Pathology and Treatment of Chronic Endocervicitis" by Dr. Sverre Oftedal. Members of the Society who attended the Tri-State Convention at Milwaukee gave reports of the meeting.

On November 19 the Society dined at the Waldorf Hotel. Our guest at this dinner was Dr. W. A. Jones, of Minneapolis. Dr. Jones gave an address on "Borderline Cases in Neurology and Psychiatry." It was a very much worth while paper, and we should like to see it published in *THE JOURNAL-LANCET*.

G. A. LARSON, M.D., Secretary

#### THE SIXTH DISTRICT (N. D.) MEDICAL SOCIETY

The November meeting of the Society, held at St. Alexis' Hospital at Bismarck on November 20, was well attended.

Dr. F. R. Smyth discussed the health conditions in Burleigh (Bismarck) County and in the state.

Dr. W. H. Bodenstab spoke of the Workmen's Compensation Bureau of North Dakota and the relations of physicians to it.

Dr. J. O. Arneson discussed "Pernicious Anemia and Other Blood Diseases."

Drs. J. O. Arneson and G. R. Lipp reported an interesting case of heart disease with complications.

Dr. A. A. Whittemore, the North Dakota Health Officer, spoke of the health conditions in the state, and asked for the co-operation of all physicians in preventive health work.

C. E. STECKHOUSE, M.D., Secretary

#### SIoux FALLS (S. D.) DISTRICT SOCIETY

The November meeting of the Sioux Falls District Medical Society was held in the Carpenter Hotel preceded by dinner. This meeting had been postponed from November 11 because of the Mitchell Clinics.



The Secretary introduced Dr. Fonkelsrude, the organizer of the Bethany Hospital Association, who spoke regarding the plans of the Association and the Moe Hospital.

The Secretary read a letter of appreciation from Dr. Parsons regarding the pen presented to him last month.

Dr. Cottam, as chairman of the Traffic Committee, reported that it was impossible to secure any favors for physicians in regard to parking overtime in restricted areas, but suggested that the City Attorney was always ready to accept a reasonable excuse.

The Secretary reported that he had heard from three of the recipients of *Hygeia* during the past year and that Sioux Falls College was very enthusiastic and requested that the paper be continued. There was no report from Columbus College, nor from Augustana.

The Secretary introduced two guests, Drs. Nielson and Gottschalk; and Dr. Park of Canton, introduced two guests.

Dr. R. Reagan read a paper on "Gas Bacillus Infections." This paper elicited a very free discussion.

Dr. R. W. Mullen read a paper on "Early Diagnosis of Pulmonary Tuberculosis." The discussion was opened by Dr. T. E. Jones.

Dr. W. F. Keller spoke regarding the smallpox situation, and a free discussion followed regarding fees for vaccinating. No action taken.

The Secretary urged all to be present at the next meeting, at which the election of officers will occur. Adjourned. Thirty-five physicians were present, and the vice-president presided.

D. A. GREGORY, M.D., Secretary

#### THE FOURTH ANNUAL CLINIC OF MITCHELL, SOUTH DAKOTA

The Mitchell physicians and surgeons gave their Fourth Annual Clinic on Nov. 11 and 12, and in spite of the fact that other important meetings were in session in Chicago and at Milwaukee, the attendance of the Mitchell Clinic was excellent. Every speaker listed on the two-day program was present, and the material at both the wet and the dry clinics was abundant.

On the morning of the 12th, wet clinics were given at the State Methodist Hospital by Drs. W. R. Ball, R. A. Kelly, F. D. Gillis, Drs. Jones & Willy, Dr. E. M. Young and Drs. Bobb & Lloyd.

On the same morning clinics were given at St. Joseph's Hospital by the following: Drs. Delaney & Tobin, Jones & Willy, Dr. E. V.

Bobb, Drs. Bobb & Lloyd, Drs. E. M. Young, F. D. Gillis and W. R. Ball.

The guests of the Clinic who presented able papers in their respective specialties were the following: Dr. Wm. A. Plummer, Rochester, Minn.; Dr. A. C. Stokes, Omaha, Neb.; Dr. R. T. LaVake, Minneapolis; Dr. B. L. Lounsbury, Chicago; Dr. S. Marx White, Minneapolis; Dr. A. E. Wilcox, Minneapolis; Dr. H. H. McClanahan, Omaha; Dr. Albert H. Andrews, Chicago; Dr. Frederick H. Roos, Sioux City, Iowa.

The papers and demonstrations by the guests took up the two afternoons of the Clinic. The entertainment of outside physicians and their wives was all that could be desired.

#### Drug Stock for Sale

Minnesota physician desires to dispose at once of his nearly new drug stock at half cost price. Address 158, care of this office.

#### Locum Tenens or Large Country Practice Wanted

I desire a position to do substitute work or will take over a country practice if the field is a large one. Address 157, care of this office.

#### An Experienced Gynecologist Desires Association With a Clinic

Can furnish the best of hospital and other references. Work with a clinic doing a large business is desired. Address 163, care of this office.

#### Opening for a Specialist

In eye, ear, nose, and throat work, an internist, or a children's specialist, in a town of 25,000 with a doctor and a dentist. Address 160, care of this office.

#### Substitute Wanted for Three Months

I want a physician to take my practice in a good North Dakota town for January, February, and March. He can make money. Address 165, care of this office.

#### Good Location and Office in Minneapolis

An excellent location and an office with a dentist can be had at 3805 Nicollet Ave., Minneapolis. A fine modern heated apartment is also open on the same floor. For information, telephone Colfax 2754.

#### Work Wanted

A recent graduate just beginning practice in Minneapolis desires work for a part of the day or night service or as a laboratory technician with a hospital, a clinic, or a physician. Address 164, care of this office.

#### Practice for Sale

General practice in northwest central part of Minnesota, in town of 600. Prosperous farming and dairying community, with no competition. \$6,000 cash practice last year. Will sell for price of equipment. Good reason for selling. Address 159, care of this office.



**Physician's Office Furniture, Etc., For Sale**

Roll-top desk, safe, white enamel folding chair and cushion, instruments, and medicines of the late Dr. H. Z. Fisher, of Lansford, N. D., are offered for sale. Everything in good condition. Can be bought at a bargain. Good location for a doctor. Address Mrs. H. Z. Fisher (Box 186), Lansford, N. D.

**A Practical Course in Standardized Physiotherapy**

Under auspices of Biophysical Research Dept. of the Victor X-Ray Corporation, is now available to physicians. The course offers a highly practical knowledge of all the fundamental principles that go to make up the standards of modern scientific physiotherapeutic work. It requires one week's time. For further information apply to J. F. Wainwright, Registrar, 236 South Robey St., Chicago, Ill.

# PHYSICIANS LICENSED AT THE OCTOBER (1924) EXAMINATIONS TO PRACTICE IN MINNESOTA

Name	School and Date of Graduation	Address
UPON EXAMINATION		
Brading, Edward Thurston	Harvard, M.D., 1923	Rochester, Minn.
Burns, Arthur	Johns Hopkins, M.D., 1923	Rochester, Minn.
Coffey, Jay Russell	U. of Ore., M.D., 1923	Rochester, Minn.
Felden, Botho	U. of Berlin, Ger., Dr. Med., 1914	2012 Hennepin Ave., Minneapolis
Flothow, Paul Geo.	U. of Pa., M.D., 1923	Rochester, Minn.
Grob, Otto	U. of Vienna, Dr. Med., 1923	Rochester, Minn.
Horwitz, Alec.	Geo. Wash. U., M.D., 1923	Rochester, Minn.
Kerlanski, Milton	U. of Minn., M.B., 1924	Swedish Hospital, Minneapolis, Minn.
McCarty, Virgil	Ind. U., Sch. of Med., M.D., 1924	Ancker Hospital, St. Paul, Minn.
Moskovitz, Selic	U. of Geneva, Switz., Dr. Med., 1924	1026 Iglehart, St. Paul, Minn.
Nelson, Nels Harvey	U. of Minn., M.B., 1924	Minneapolis General Hospital
Nutting, Roland E.	U. of Minn., M.B., 1924	Minneapolis General Hospital
Rosenthal, Robert	U. Vienna, Dr. of Med., 1922	Lowry Building, St. Paul, Minn.
Rygh, Edgar A.	Rush, 4-yr. Cert. Med., 1924	Ancker Hospital, St. Paul, Minn.
Sager, Wm. Warren	Geo. Wash. U., M.D., 1922	Rochester, Minn.
Setzer, Geo. Warren Jr.	Rush, 4-yr. Cert. Med., 1923	Ancker Hospital, St. Paul, Minn.
Schnarrenberger, Gottfried		
Karl Friedrich	U. Heidelberg, Dr. of Med., 1919	Rollingstone, Minnesota

## THROUGH RECIPROCITY

Ash, Wilfrid A.	Creighton, M.D., 1923	Rochester, Minn.
Basinger, Homer P.	Northwestern, M.D., 1924	Windom, Minn.
Bofenkamp, Ferdinand W.	St. Louis U. Sch. of Med., M.D., 1922	Luverne, Minn.
Bratrude, Amos	U. of Ill., M.D., 1924	Starbuck, Minn.
Chambers, Stanley O.	U. of Mich., M.D., 1923	Rochester, Minn.
Critchfield, Lyman Ray	U. of Minn., M.D., 1909	936 Lowry Bldg., St. Paul, Minn.
Duncan, Perry E.	Wash. U., M.D., 1924	St. Luke's Hospital, St. Paul, Minn.
Harshbarger, Isaac L.	U. of Va., M.D., 1922	Rochester, Minn.
Horton, Vincent J.	U. of Ia., M.D., 1923	Preston, Minn.
Johnson, Henry P.	Bowdoin, M.D., 1921	Rochester, Minn.
Kertesz, Geza Jos. Victor Emil	Hungarian Royal U., Dr. Med., 1918	1837 Park Ave., Minneapolis, Minn.
McDonell, Charlie H.	Bennett Coll. of Ecl. Med. and Surg., M.D., 1906	Hankinson, N. D.
McQuiggan, Mark Ronald	U. of Pittsburgh, M.D., 1923	Rochester, Minn.
Melson, Madeline Ann Muldoon	U. of Cal., M.D., 1924	Rochester, Minn.
Ochsenhirt, Norman C.	U. of Pittsburgh, M.D., 1917	Rochester, Minn.
Prickman, Louis E.	U. of Pittsburgh, M.D., 1923	Rochester, Minn.
Sadler, Wm. Paul Jr.	Johns Hopkins, M.D., 1921	Maryland Hotel, Minneapolis, Minn.
Stevenson, Geo. S.	Johns Hopkins, M.D., 1919	133 Millard Hall, U. of Minn.
Synhorst, Alfred Paul	U. of Iowa, M.D., 1923	Rochester, Minn.
Thompson, John Wm., Jr.	Wash. U., M.D., 1923	Rochester, Minn.
Vivian, Robert S.	Rush, M.D., 1922	Hibbing, Minn.
Wilkinson, Henry Fielding	Yale, M.D., 1921	Rochester, Minn.



# INDEX TO VOLUME XLIV

## ARTICLES

Abdomen, differential diagnosis of lesions in the right lower quadrant of the	293	Orthopedics: a clinic	490
Abdominal pain, some common causes of acute	264	Osteomyelitis, report of a case of chronic multiple	264
Accessory sinuses of the nose, anatomy of the: a clinic	465	Pain, some common causes of acute abdominal	481
Acid burns, the treatment of lye and	259	Pediatric clinic	580
Acne, treatment of, by autogenous vaccines	239	Pleurodynia, epidemic	83
Adhesions, peritoneal	245	Practitioners, alien	424
Air passages, corn kernels in the	82	Pregnancy, vital capacity in	470
Alien practitioners	227	Pregnancy with complications: threatened eclampsia; puerperal breast abscess—a case report	241
Anaphylaxis: its part in the disease of infancy and childhood	1	Pre-operative considerations, a few	461
Anesthesia, regional, in surgery of the prostate gland and bladder	602	Present-day problems, a few	301
Appendicitis, acute	182	Pro bono publico	246
Appendicitis and ureteral calculus, the differential diagnosis between	597	Proctology, some every-day problems in	433
Appendicitis, some prevalent errors in the diagnosis of	411	Psychoses, modern classification of	127
Arthritis, surgery in cases of tuberculous	315	Resonators, some remarks on	95
Bone tumors of traumatic origin	63	Retrospect and introspect	411
Brain injuries, treatment of	510	Rollier's treatment of tuberculosis: a clinic	251
Burns and their treatment	259	Social insurance	331
Burns, the treatment of lye and acid	333	Speech clinic of the Minneapolis General Hospital	236
Cancer of the upper end of the esophagus, radium treatment for	103	Spleen, subcutaneous injuries of the normal	634
Cancer, the present status of radiation therapy in	419	Social hygiene, the educational or legal way to establish	341
Carcinoma of the cervix: clinical demonstration of cases	591	South Dakota State Medical Association, roster of the	446
Cardiac diagnosis and treatment, some aspects of	419	South Dakota State Medical Associations, transactions of the forty-third annual meeting	49
Cervix, carcinoma of the: clinical demonstration of cases	551	Student's health service of the University, relationship of the, to the physicians of the state	299
Chest conditions simulating tuberculosis: a clinic	457	Surgery, traumatic and bone	331
Child welfare	304	Syphilis, the general pathology of	365
Clinical laboratory, the blood	422	Teeth, unerupted and impacted	18
Consumptive, a square deal for the	609	Thoracoplasty, some surgical considerations of extrapleural	8
Contagious disease prevention	164	Thoracotomy, exploratory, in all severe injuries of the chest	40
Cults	515	Toxemia of pregnancy signalized by nausea and vomiting	49
Cults, the fear of the	91	Traumatic and bone surgery	131
Diabetes and its treatment with insulin	68	Tuberculosis, certain aspects of the differential diagnosis of hyperthyroidism and pulmonary	551
Diabetes in children, the use of insulin and high fat feeding in	38	Tuberculosis, chest conditions simulating: a clinic	158
Diphtheria in the genital tract in puerperal women	479	Tuberculosis of female generative organs	370
Encephalitis, spasmodic torticollis, respiratory arrhythmia, and chorea, streptococci in the etiology of epidemic	370	Tuberculosis of the epididymis	120
Epididymis, tuberculosis of the	379	Tuberculosis of the larynx	356
Epilepsy, on the pathogenesis of	333	Tuberculosis of the lymph nodes	119
Esophagus, radium treatment for cancer of the upper end of the	270	Tuberculosis: Park View Sanatorium	155
Eye-ball, the early treatment of injuries to the	82	Tuberculosis pericarditis	416
Family physician, the amputation of the: is the line of demarcation just above the ears?	46	Tuberculosis sanatorium, the, and its diagnostic laboratories	129
Fractures, greenstick, a treatment for, and for dislocations of the clavicle	287	Tuberculosis, symposium on	119
Fractures of the bones of the leg involving the ankle-joint	205	Tuberculosis, the diagnosis of pulmonary	441
Fractures, the commoner deformities following	165	Tuberculosis, the heart and	151
Gradenigo's syndrome, a case of, complicating mastoiditis	392	Tuberculosis, the relationship of the gastro-intestinal tract to	147
Heart, diseases of the	151	Tuberculosis, the vital capacity test in so-called peribronchial, and in peribronchial tuberculosis complicated by bronchitis and pleurisy: a preliminary report	157
Heart, the, and tuberculosis	109	Tuberculous children, x-ray findings in	150
Hydronephrosis, a case of bilateral, in a male fetus of seven and one-half months	324	Tuberculous conditions of the abdomen, a preliminary report on the treatment of by means of oxypertoneum and pneumoperitoneum	571
Hyperthyroidism, iodine as a cause of	10	Tuberculous, home treatment for the	161
Hypothyroidism, with special reference to the minor thyroid deficiencies	911	Tuberculous patient, surgery of the	153
Insulin, diabetes and its treatment with	68	Tuberculous peritonitis, surgery in	153
Insulin, the use of, and high fat feeding in the treatment of diabetes in children	324	Tuberculous, the care of the indigent, of a city, with particular reference to Minneapolis	133
Iodine as a cause of hyperthyroidism	35	Tumors, bone, of traumatic origin	315
Knee-joint, a plea for the straight limb in the treatment of pathologic conditions of the	320	Uterus, puerperal inversion of the: three cases	6
Liver, crushing injuries of the	259	Vitamins in the diet, the significance of, in infants and children	186
Lye and acid burns, the treatment of	43	Workmen's Compensation Law, the relation of the physician to the administration of	628
Lymanhurst school for tuberculous children, the past accomplishments and the future possibilities of the medical staff of the	165	X-ray findings in tuberculous children	150
Mastoiditis, a case of Gradenigo's syndrome complicating	582		
Minneapolis Clinical Club, transactions of the	328		
Minnesota Academy of Medicine, proceedings of the	565		
Minnesota General Hospitals, the	401		
Mutation	389		
Nervous system, the	529		
North Dakota State Medical Association—1924	547		
North Dakota State Medical Association, president's address to	542		
North Dakota State Medical Association, roster of the	635		
Nose bleed	465		
Nose, the anatomy of the accessory sinuses of the: a clinic	503		
Obstetric and gynecologic conditions: a clinic	631		
Obstruction, the cause and treatment of acute intestinal			

## CONTRIBUTORS

Adair, F. L.	95, 503
Adamson, J. D.	441
An old country doctor	83, 301, 401, 515
Aylen, James P.	6
Bacon, H. P.	127
Beard, R. O.	565
Bell, J. Warren	424
Bessesen, D. H.	356, 470
Bonney, T. C.	332
Bratrud, Theodor	236, 602
Burns, H. A.	161
Cady, L. H.	157
Chandler, F. C.	287
Cole, Wallace	490
Collins, Arthur N.	201



*Barrack*

EDITORIALS

Copps, Lyman A.	-	-	-	-	-	-	-	-	270	A further effort to eliminate quackery	-	-	28
Corbett, J. F.	-	-	-	-	-	-	-	-	63	Another viewpoint of the medical expert	-	-	29
Corcoran, L. L.	-	-	-	-	-	-	-	-	461	The electron theory	-	-	29
Cranmer, Richard B.	-	-	-	-	-	-	-	-	153	The annual meeting of the Hennepin County Medical Society and the president's address	-	-	55
Desjardines, A. U.	-	-	-	-	-	-	-	-	103	Staff meetings and medical meetings	-	-	56
Diehl, H. S.	-	-	-	-	-	-	-	-	446	Dr. Bruce W. Jarvis in China	-	-	56
Dooge, Karl W.	-	-	-	-	-	-	-	-	18	Dr. John Hunter Adair	-	-	57
Dunn, Arthur D.	-	-	-	-	-	-	-	-	392	Speeding up education	-	-	85
Engstad, J. E.	-	-	-	-	-	-	-	-	635	Dr. Albert Abrams dies	-	-	86
Fansler, W. A.	-	-	-	-	-	-	-	-	246	Minneapolis Clinic Week	-	-	111
Fulton, Wm. A.	-	-	-	-	-	-	-	-	46	Minnesota Health Exposition	-	-	112
Gaebe, Edward C.	-	-	-	-	-	-	-	-	239	"The New Decalogue of Science"	-	-	112
Gardner, E. L.	-	-	-	-	-	-	-	-	10	Dr. Schlutz, University pediatrician	-	-	114
Giessler, Paul W.	-	-	-	-	-	-	-	-	160	The present intangible epidemic	-	-	142
Goss, Edwin L.	-	-	-	-	-	-	-	-	510	National brain storms	-	-	142
Grassick, James	-	-	-	-	-	-	-	-	547	The Northwestern Hospital drive	-	-	143
Haberlin, Fritz A.	-	-	-	-	-	-	-	-	259	Symposium on tuberculosis	-	-	144
Hamilton, A. S.	-	-	-	-	-	-	-	-	77	Minneapolis Clinic Week	-	-	169
Harrington, Charles D.	-	-	-	-	-	-	-	-	333	The 55th medical anniversary of Dr. A. W. Abbott, of Minneapolis	-	-	169
Hayes, E. W.	-	-	-	-	-	-	-	-	571	Dr. Morris Fishbein in Minneapolis	-	-	193
Henderson, M. S.	-	-	-	-	-	-	-	-	205, 411	Minneapolis Clinic Week	-	-	194
Hendrickson, Gilbert	-	-	-	-	-	-	-	-	241	Medical education and licensure	-	-	219
Iked, Kano	-	-	-	-	-	-	-	-	129	Educational Law held unconstitutional	-	-	220
Jackson, Arnold S.	-	-	-	-	-	-	-	-	324	Smallpox	-	-	220
Johnson, Elmer W.	-	-	-	-	-	-	-	-	631	The Minneapolis Health Exposition	-	-	221
Jones, W. A.	-	-	-	-	-	-	-	-	433	"What doctor shall we call?"	-	-	252
Kassowitz, C. E.	-	-	-	-	-	-	-	-	634	Mr. and Mrs. General T. Apathy	-	-	279
King, Walter E.	-	-	-	-	-	-	-	-	26, 80, 167, 210, 249, 304	Minneapolis Clinic Week	-	-	280
La Vake, R. T.	-	-	-	-	-	-	-	-	40	The Health Exposition in Minneapolis	-	-	280
Law, Arthur A.	-	-	-	-	-	-	-	-	365	Politics and publicity from a medical angle	-	-	307
Leland, John T.	-	-	-	-	-	-	-	-	82	The formation of a society of optimists	-	-	308
List, Walter E.	-	-	-	-	-	-	-	-	119, 331	The South Dakota State Medical Meeting	-	-	308
MacMillan, Angus E.	-	-	-	-	-	-	-	-	293	Erythroderma	-	-	336
Marcley, Walter J.	-	-	-	-	-	-	-	-	126	Murder of deliberation	-	-	337
Mariette, Ernest S.	-	-	-	-	-	-	-	-	175	The meeting of the American Medical Association	-	-	359
Massaglia, A. C.	-	-	-	-	-	-	-	-	109, 379	Doctor Haldor Sneve	-	-	361
Maxeiner, S. R.	-	-	-	-	-	-	-	-	153, 370	The osteopaths and chiropractors in South Dakota	-	-	361
McCannel, A. D.	-	-	-	-	-	-	-	-	8	Water pollution and water purification	-	-	381
McKinlay, C. A.	-	-	-	-	-	-	-	-	131	"What'll we do?"	-	-	382
McMullen, Clarence J.	-	-	-	-	-	-	-	-	591	Social problems in medicine	-	-	383
Meeker, William B.	-	-	-	-	-	-	-	-	1	Physical handicaps	-	-	403
Michelson, H. E.	-	-	-	-	-	-	-	-	299	Hypertension and hypotension	-	-	404
Morse, R. W.	-	-	-	-	-	-	-	-	150	Medical officers' training camp	-	-	406
Mulligan, Thomas	-	-	-	-	-	-	-	-	597	Epilepsy	-	-	427
Myers, J. A.	-	-	-	-	-	-	-	-	43, 133, 375	Alcohol and longevity	-	-	428
Nestos, Peter A.	-	-	-	-	-	-	-	-	315	The Northern Minnesota Medical Association	-	-	429
Parker, Charles A.	-	-	-	-	-	-	-	-	35	The Abrams' investigation	-	-	450
Pearce, N. O.	-	-	-	-	-	-	-	-	68	The narcotic situation	-	-	451
Peterson, Thorvald	-	-	-	-	-	-	-	-	245	Warren L. Beebe	-	-	453
Phelps, Kenneth A.	-	-	-	-	-	-	-	-	165	Cancer of the rectum	-	-	471
Platou, E. S.	-	-	-	-	-	-	-	-	609	Prejudice against scientific methods	-	-	471
Pratt, J. A.	-	-	-	-	-	-	-	-	465	Annual meeting of the North Dakota State Medical Association, 1924	-	-	472
Pritchard, J. S.	-	-	-	-	-	-	-	-	416, 551	The child's guidance clinic	-	-	497
Ridgway, Alfred M.	-	-	-	-	-	-	-	-	155	The St. Cloud meeting of the Minnesota State Medical Association	-	-	498
Rigler, Leo G.	-	-	-	-	-	-	-	-	155	Making life worth while	-	-	498
Roan, Martin W.	-	-	-	-	-	-	-	-	320	A greater medical school in Minnesota	-	-	520
Roost, F. H.	-	-	-	-	-	-	-	-	52	The annual meeting of the Minnesota State Medical Association	-	-	521
Rosenow, Edward C.	-	-	-	-	-	-	-	-	479	The Inter-State Postgraduate Assembly of America	-	-	522
Schlutz, Frederick W.	-	-	-	-	-	-	-	-	186, 457, 481	Why should I join a medical society	-	-	523
Schwartz, Virgil J.	-	-	-	-	-	-	-	-	120	The Soo Surgical Association papers	-	-	524
Shannon, W. Ray	-	-	-	-	-	-	-	-	227	"What's the matter with county societies?"	-	-	561
Shelden, Walter D.	-	-	-	-	-	-	-	-	389	Dr. Archibald MacLaren	-	-	562
Shillington, M. A.	-	-	-	-	-	-	-	-	91	Dr. J. A. Monahan	-	-	562
Slater, S. A.	-	-	-	-	-	-	-	-	422	Dr. Frederick Lee Beckley	-	-	562
Stern, M. A.	-	-	-	-	-	-	-	-	419	The Inter-State Postgraduate Assembly	-	-	586
Stewart, C. A.	-	-	-	-	-	-	-	-	609	The smallpox situation	-	-	587
Stewart, D. A.	-	-	-	-	-	-	-	-	137	Albert Edward Wiggam	-	-	588
Sweetser, Theodore H.	-	-	-	-	-	-	-	-	182	Bone tuberculosis	-	-	611
Thompson, George F.	-	-	-	-	-	-	-	-	74	Old syphilis	-	-	612
Vaughan, R. T.	-	-	-	-	-	-	-	-	49	The Cass County (N. D.) Medical Society Meeting at Fargo	-	-	613
Waldschmidt, R. H.	-	-	-	-	-	-	-	-	370	Dr. John Williams	-	-	613
Wenzel, R. E.	-	-	-	-	-	-	-	-	628	Health activities in the United States	-	-	636
Wright, Charles B.	-	-	-	-	-	-	-	-	147, 580	The Minnesota State Medical Association	-	-	636
Ziskin, Thomas	-	-	-	-	-	-	-	-	151				

*Waldschmidt*